

Med.
I

INTERNATIONAL MEDICAL DIGEST

Vol. II

JANUARY, 1921

No. 1

CONTENTS



	PAGE
Editorial Abstract Board - - - - -	2
Section on General Medicine - - - - -	3-50
Section on Laboratory and Research - - - - -	51-68
Section on Pediatrics - - - - -	69-72
Section on Roentgenology and Electrotherapeutics - - - - -	73-88
Section on Neurology and Psychiatry - - - - -	89-96
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-vi
Index of Subjects - - - - -	vi-xi

170632-
19/4/22

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1920, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHIEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

JANUARY, 1921

No. 1

SECTION ON GENERAL MEDICINE

BANUELOS, M.: **Studies on Cardiac Dynamics** (Estudios sobre dinamica cardiaca). *Plus Ultra*, Madrid, Jan. and Feb., 1920, p. 48.

The author has made a very interesting study to determine the laws by which the cardiac muscle performs its work. He used Frank's technic which consists in establishing the circulation of a nutritious liquid through the heart. He observed that the laws which control the heart are the same as those established by Frick, von Kries, Heidenhain, and Santensson for the other muscles of the skeleton when they are submitted to different loads during contraction. Thus when the heart's cavities are overfilled, they dilate, and the length and the tension of their fibers increase. During systole the tension is greater and proportional to the filling of the heart. When the heart is only slightly filled, the shortening of the heart in systole may be the same or greater than observed when it is well filled. The systole shortening of the heart diminishes when the heart fills, but never runs parallel to the filling because the heart exerts greater effort than it does under normal conditions.

When the heart is overfilled and its fibers are exceedingly distended, there is no shortening during systole. When the systole meets with great resistance in the aortic system, the time of the systole is prolonged, and the heart does not empty itself completely. When the resistance increases, the ventricle cannot expel any liquid at all. When the heart is undernourished, its power of contraction

is less. In such cases the normal conditions of circulation have to be reëstablished, and the heart will recover its contractibility unless the distention of the fibers, and the paralysis of the cardiac function, have lasted for so long a time that it is impossible to reëstablish the physiological conditions.

C. F. ARROYO.

REID, W. D.: *Specific Aortitis. The Boston Medical and Surgical Journal*, July 15, 1920, clxxxiii, No. 3, p. 67; continued July 22, p. 105.

This is a study of 54 cases found at autopsy between January, 1909 and August, 1919, and 105 patients treated in the out-patient department of the Massachusetts General Hospital. The cases were 3.5 per cent of the autopsies made between the above dates, in 40 of which aortitis was the primary cause of death. The spirochete was found in the aorta in 11 of the 54 cases. A search was made. The period between the infection and the appearance of the aortic lesion varied from six months to thirty-three years. The first part of the aorta was involved in all but three instances. Pain is a prominent symptom, ranging from a sense of tightness to severe angina; it may come in attacks or be continuous. Shortness of breath was present in two thirds. Fever did not occur often and in only 3 cases exceeded 100. Diagnosis is easy in advanced cases but almost impossible in the early stages. Prognosis is grave on the whole. The author's conclusions follow:

(1) Syphilitic disease of the aorta is one of the most common and serious findings in all cases of acquired syphilis.

(2) The lesion is essentially a mesaortitis and a manifestation of active syphilitic disease; its conception as a parasylphide was made untenable by the discovery in 1906 of the spirochete in the aortic lesion.

(3) The aortic process frequently extends to the aortic cusps and often there is an accompanying myocarditis of spirochetal origin.

(4) Aortic roughening, aortic regurgitation, dilatation or aneurism of the aortic arch and angina pectoris are common in syphilitic aortitis.

(5) Aortic or mitral stenosis is of exceptional occurrence in connection with specific aortitis.

(6) Non-syphilitic forms are rare.

(7) Many cases may be called latent in that symptoms are absent; they are undiagnosed until disclosed in a routine roentgen examination.

(8) There is no one point on which a diagnosis should be based. Study of all the facts is essential.

(9) Every case of cardiac disturbance of obscure origin, if there are signs of involvement of the aortic valve, should suggest the probability of syphilitic causation.

(10) A positive Wassermann is of confirmative value, but it is frequently absent.

(11) Roentgen examination, though unreliable in early cases, gives, perhaps, the most reliable findings.

(12) Specific aortitis evidences a tendency to progressive impairment of the heart and aorta and is therefore serious.

(13) Treatment should be directed toward killing the spirochetes in the aortic lesions. Decomposition of the heart is to be treated as in that of non-syphilitic origin.

(14) Early diagnosis is imperative. There should be greater willingness on the part of clinicians to make a tentative diagnosis, and to resort to a therapeutic test.

M. M. BANOWITCH.

SCHRUMPF, P.: **Quinin in Auricular Fibrillation and Flutter** (Action de la Quinine dans la Fibrillation et la Tachysystolic Auriculaires). *La Presse medicale*, July 31, 1920, xxviii, No. 53, pp. 524-6.

From his clinical studies, Schrumpf concludes that:

(1) Auricular fibrillation and auricular flutter, when definitely established, are not improved by the use of quinin, despite the administration of large doses of this drug. When the condition of the auricles is only temporary, quinin has a curative effect in some cases.

(2) The amelioration of the circulation, and the regularity of the pulse observed in cases of fibrillation after the administration of

quinin, are due to a transformation of the fibrillation into a flutter, and a consequent regularization of the ventricular contractions, and not to a complete cure of the fibrillation.

(3) The value of quinin is increased if digitalis, in large doses, is given simultaneously with it.

(4) The use of quinin and digitalis may tend to avoid or retard the development of an auricular fibrillation, if the drugs are given in the prefibrillatory stage.

S. KAHN.

CHUTE, A. L.: The Significance of Hematuria. A Study of One Hundred Personal Cases. *The Boston Medical and Surgical Journal*, June 17, 1920, clxxxii, No. 25, p. 623.

An analysis of 100 cases showed the following lesions of the genito-urinary tract:

Bladder infiltrating growths	32
Bladder massive papillomata	11
Bladder small papillomata	7
Hypernephromata	8
Prostate, benign	7
Prostate, malignant	6
Nephritis	7
Renal tuberculosis	5
Hydronephrosis	3
Stone in kidney	4
Stone in ureter	3
Stone in prostate	1
Banti's disease	3
Polycystic kidney	1
Diverticulum bladder	1
Papillary cystitis	1

100

On looking over this list one is impressed with the fact that it contains relatively few conditions in which one can afford to procrastinate if he is to give his patient the best chance. There is not a

single case that can be accounted for by oxaluria or uric acid crystals, conditions that have been called upon too often to account for hematuria. The author believes that this series of cases which probably represents the ordinary run of such cases proves very definitely that hematuria is not a condition to be looked upon lightly; that in more than half the cases it is indicative of an extremely serious condition which is only remediable when treated early; that in only a small proportion of cases, more especially in cases of bleeding nephritis, can it be said that it makes no real difference whether they are attacked early or not; that in these very cases it is essential that they be investigated for the reason that in most instances without this investigation it is impossible to distinguish them from cases of hypernephroma where an early diagnosis and early removal of growth are essential if one is to accomplish anything in this class of tumors of the kidney. Study of a considerable number of cases convinces one that a physician who should tell his patient that he might safely ignore his bleeding would show poor judgment medically; that although he would be partially correct, good results would be obtained by good luck rather than by sound medical reasoning.

M. M. BANOWITCH.

SCHNEIDER, J. P.: **A Study of the Bile Pigments in Pernicious Anemia.**
Journal of the American Medical Association, June 26, 1920, lxxiv.
No. 26, p. 1759.

Supplementing an earlier report on a method of spectroscopic examination of duodenal contents to measure bile pigments, urobilin and urobilinogen, Schneider again emphasizes the reliability of the method, points out that further study has added proof that urobilinogen is never present in health, and then tabulates 78 cases of pernicious anemia in which studies of bile pigments had been carried out. The duodenal content, obtained through an ordinary Einhorn tube very readily with a little practice, is far more readily examined than stools. One notes the high death rate, the progressive course to a fatal termination in from two to three years, the color index, which in this series averages about 1.03, the age, which does not vary far from 45 and the almost invariable increase in bile pigment values. The author again refers to his H-H index, a method of indicating

the rate of blood regeneration to destruction. He says: "If our concept, that early in pernicious anemia the hemolitic factor is uppermost and that later in the disease the marrow fails, is true, then the H-H index should be higher in the early cases." His tables show an index of 1.16 (normal equals 1) in cases under 12 months' duration, and an average of 0.83 in patients ill over 12 months. He argues that a distinct leukopenia should parallel a low H-H index, an observation that his tables confirm. The two taken together are of bad prognostic import, no matter how early the case. Incidentally while carrying out control experiments on normal students, the author observed the effect of quinine on bile pigments and concludes that definite hemolytic effects were observed. He suggests that black-water fever may be the result of quinine and not of the infecting agent.

H. G. WEBSTER.

GRAHAM, J. M. Transfusion of Blood in Pernicious Anemia. *Edinburgh Medical Journal*, May, 1920, xxiv, No. 5, p. 282.

In a very complete analysis of 23 cases of pernicious anemia treated by transfusion at the Edinburgh Infirmary the author draws the following conclusions:

Transfusion of blood is of considerable value in cases of pernicious anemia which have failed to respond to all the usual medical measures. It may alleviate, but it cannot cure such cases. The ideal method of transfusion is either directly from artery to vein, or, preferably, indirectly from vein to vein. Anticoagulant substances should not be used when methods of transfusing unmodified blood are available.

A large amount of blood is unnecessary, owing to the risks of over-transfusion and to the fact that the benefit conferred is not necessarily in proportion to the volume of blood received.

A repetition of transfusion should be considered when the symptoms relapse, or if the first transfusion fails to produce the desired effect.

The dangers of transfusion are small, and especially if the preliminary tests have been made to exclude the risks of hemolysis.

Transfusion is not to be regarded as an alternative to other forms of treatment, but as a therapeutic agent in reserve.

The benefit derived may be only slight and temporary, or it may be continuous, and a fresh period of remission from the anemia may be initiated.

The prospects of benefit are greater if the transfusion is given before the patient is critically ill.

Even in the apparently exhausted and hopeless cases, transfusion occasionally will resuscitate the patient in a remarkable manner. Transfusion will initiate a fresh remission in 43 per cent of the cases in which the anemia has been progressive or in which it has failed to respond to medical treatment, including arsenic.

When the patients are critically ill, a fresh remission follows 28.5 per cent of the cases.

When the patients are seriously, but not critically, ill at the time of transfusion, a fresh remission follows in 50 per cent of the cases.

Cases of an acute type and cases with marked pyrexia, or a history of hemorrhages, are least likely to benefit.

The immediate effects of transfusion are often striking; the symptoms of nausea and vomiting are occasionally relieved at once.

Arsenic is better tolerated and seems to be more effective.

The onset of a remission following transfusion is due to the reaction of the bone marrow.

Fresh activity on the part of the bone marrow may possibly be due to the dilution of toxin or to the direct stimulation of the marrow, but it is more probably a result of general improvement in nutrition.

The advisability of transfusion should be considered, but the results are not sufficiently consistent or permanent to justify its being urged in all cases of pernicious anemia which are stationary, progressive, or critical, in spite of the usual means of treatment.

D. F. LAYTON.

GARLAND, J., AND WHITE, P. D.: Paralysis of the Left Recurrent Laryngeal Nerve Associated with Mitral Stenosis. *Archives of Internal Medicine*, Sept., 1920, No. 3, p. 343.

Nine cases of paralysis of the left recurrent laryngeal nerve associated with mitral stenosis are reported. These cases were all

encountered at the Massachusetts General Hospital within the last eight years. As the authors were able to find but 61 similar cases in the literature, they concluded that the condition must be frequently overlooked. They concur in the opinion of Fetterolf and Norris that the explanation of this phenomenon depends upon pressure upon the nerve by the pulmonary artery, which is crowded over by a dilated left auricle.

It may occasionally be caused, as Lian and Marcovelles have shown, by a thrombus in the left auricle, or a certain degree of chronic mediastinitis, which results in sufficient hardness to cause or transmit pressure. The authors believe that auricular fibrillation predisposes to thrombus formation in the auricle and therefore to pressure on the nerve.

T. HOWARD.

GOLDBERGER, J., WHEELER, G. A., AND SYDENSTRICKER, E.: *The Relation of Diet to Pellagra Incidence. Public Health Reports*, March 19, 1920, xxxv, No. 12, pp. 648-713.

INTRODUCTION.—From the earliest history of pellagra a more or less important rôle has been assigned to diet in its relations to disease. This was first called to attention by Casal. To determine exactly what this relation is, Goldberger and others have undertaken epidemiologic studies in various institutions, which have indicated that the development depends in some way upon a faulty diet, one containing too little fresh animal protein food and too much of cereals and vegetables. It was also shown that pellegra in institutions where it had been endemic, was prevented by an appropriate diet, without any other hygienic or sanitary changes. Furthermore the disease was produced in 6 out of 11 volunteers, on a diet of cereals, vegetables, and pork fat, while no cases developed among controls living under less hygienic conditions and working harder.

The present study was undertaken in 1916 and is still in progress. Its object is to study further the bearing of dietary, sanitary and economic conditions in the incidence of pellegra in different types of industrial and rural communities.

REVIEW OF STUDIES OF OTHER WORKERS.—During the summer of 1911 and 1912 an epidemiological study was carried out by Grimm in certain localities of Kentucky, South Carolina, and Georgia.

He attempted a systematic collection of data in regard to the food used by pellagrins previous to the onset of the disease, but found it impossible to obtain data sufficiently accurate to warrant any conclusions. From his observations, however, he felt that "the relationship between food and pellagra seems to be a real one".

In 1912 J. F. Siller, P. E. Garrison, and W. J. MacNeal began a study in South Carolina. From their first year's work they concluded that there were no points of difference between the diet of pellagrins and non-pellagrins, and from the second year's work they concluded that the incidence of pellagra was highest in the group that used fresh meat daily and that those avoiding fresh meat contracted the disease the least. In regard to these conclusions the authors point out that the data were of a very general character, that the workers did not apparently appreciate the seasonal factor in relating diet to the incidence of the disease, that the data related to family, not to individual use of foods, that there is no clear-cut distinction between active and quiescent cases, that the data are relatively incomplete, and that the statistics given were open to quite different interpretations from those actually drawn by the workers.

The relation of diet to pellagra was a part of a study made by Jobling and Peterson during 1915 and 1916, in Nashville, Tenn. In the opinion of the authors, the data collected were of a very general character, depending upon the statement of patients or relatives for diet covering a period of years, both as to quality and quantity.

The primary purpose of all these studies seems to have been to throw light on the etiology of the disease, while the object of the authors' investigations has been the determination of some method of prevention and control. This was perferred by them on account of the lack of conclusiveness of the previous studies; and because, by analogy with the work on endemic scurvy and beriberi, where method of prevention and control were developed before the etiology was determined, results of practical value might be hoped for.

PLAN AND METHOD OF PRESENT STUDY.—It was the purpose of the study "to make as accurate observations as possible relating to the diet, economic conditions and sanitary environment of a population in which pellegra was endemic, and to correlate the results

with the incidence of the disease in this population". Seven cotton mill villages were selected, of from 500 to 800 inhabitants. With the exception of a few negro families, which were not considered, the people were of Anglo-Saxon stock, born in this country of American-born parents. An exceptionally homogeneous group was therefore available. The incidence of pellagra was determined by a house-to-house canvass every two weeks from April, 1916 to the end of the year. This is the most extensive use of this method which has been attempted in any epidemiological study. In time the confidence of the people was gained and a large number of cases were seen which were not under medical care.

CRITERIA OF PELLAGRA. "Only patients with a clearly defined, bilaterally symmetrical dermatitis were recorded as having pellagra". The authors believe that so rigid a criterion eliminates certain cases of true pellagra without or with a poorly defined eruption. It is their opinion that, clinically, pellagra includes two etiologically distinct but closely related syndromes: (1) "pellagra sine pellagra, the syndrome without eruption, and (2) the dermatitis, or pellagra without or with only very slight constitutional manifestation."

Only active cases were considered as pellagrins without regard to whether or not they were first or recurrent attacks. The inactive or quiescent cases were placed in the group of non-pellagrins, as freedom from recurrence in pellagra must be recognized as possibly being due to the same cause as it is in beriberi or in scurvy—namely, a change of diet. The date of the appearance of the eruption was assumed to mark the onset of the attack.

SEASON.—It is evident that to properly study the relations of diet to pellagra—as to its possible causative or preventive power—the diet immediately preceding the period of greatest incidence of the disease and also that immediately preceding or coincident with the decline in incidence and the clinical improvement of cases must be known. In the Southern states the seasonal curve of pellagra incidence begins in the late spring and reaches its peak late in June, declining sharply in July. These relations were kept in mind by the authors; they have been neglected by other workers.

DIETARY DATA.—Data relating to household diet were secured by obtaining records of sales from the stores for fifteen-day periods for each family and by making a house-to-house canvass relating to the foods obtained from other sources.

COMPARISON OF DIETS.—The diets of the pellagrous and non-pellagrous households were thoroughly compared in several tables showing the average daily supply of the various foods as a whole for the two groups; this study was also arranged on the basis of income. From a careful study of all these data the authors found that (1) the nonpellagrins enjoyed a more liberal food supply than did the pellagrins; and (2) that foods of the animal protein group (lean meat, milk, butter, cheese, and eggs) were more liberally supplied in the nonpellagrous than in the pellagrous households.

RELATION OF PELLAGRA INCIDENCE TO VARIATIONS IN SUPPLY OF "ANIMAL PROTEIN" FOODS.—A study of the milk consumed in the different families showed that the incidence of pellagra was relatively rare among households having a liberal supply of fresh milk. It is interesting to recall a similar observation made by Bouchard over fifty years ago.

The same relationship was shown to exist in regard to the supply of fresh meat and the incidence of pellagra,—it being three times as great in households having less than one pound of meat per adult male per fifteen-day period as it was in households with a larger supply. It was also shown that an increasing supply of either of these foods, independent of each other, was associated with a decreasing incidence of pellagra.

FOODS OF THE GROUPS ASSOCIATED WITH INCREASED PELLAGRA INCIDENCE.—A study was made to determine, if possible, any relation between the incidence of pellagra and the consumption of corn meal, wheat flour or the common dried legumes. None could be found. The evidence was against the Italian theory that spoiled corn is an etiological factor.

DIETARY FACTORS.—Various details of the diet were carefully studied.

CALORIES.—While the energy in the average food-supply of pellagrous households was somewhat less than it was in the nonpellagrous, it was within standard limits and therefore does not seem to be an *essential* factor in relation to the incidence of the disease.

PROTEIN.—The total amount of protein in the pellagrous households was well below the older American standards (Atwater), but it was above those established by Chittenden and Hindle. The protein supply of the pellagrous households, however, had a smaller proportion derived from animal food than was the case in the non-

pellagrous, which suggests that the absence of amino-acids may play a part in the etiology.

CARBOHYDRATE AND FAT.—The proportion of calories derived from carbohydrates and fat was practically the same in the pellagrous and nonpellagrous households. The supply of carbohydrate was, if anything, smaller in the pellagrous households; this does not bear out the theory that the production of pellagra is dependent upon the excessive consumption of carbohydrates.

VITAMINS.—The supply of vitamin, especially of the "fat soluble A", was less in the pellagrous households than it was in the nonpellagrous households.

INORGANIC CONSTITUENTS.—The mineral elements were more likely to be deficient in the pellagrous than in the nonpellagrous households on account of the smaller supply of animal foods, especially milk.

The authors conclude:—"The indications afforded by this study suggest that the pellagra preventive power of a milk or meat supplement is due to the effect of a correction in the type of diet studied, of a deficiency in supply either (1) of some amino-acid or acids, (2) of the ash or of some of its constituents, (3) of some essential as yet unknown (vitamin?), or (4) of all or of a combination or combinations of some of these. Conversely, they suggest that the pellagra-producing dietary fault is the result of some one or of a combination or combinations of two or more of the following factors: (1) A physiologically defective protein (amino-acid) supply; (2) a defective or inadequate mineral supply; (3) a deficiency in a dietary essential as yet unknown (vitamin?). The somewhat lower plane of supply, both of potential energy and of protein, in the diets of the pellagrous households, though apparently not an essential factor, may, nevertheless, be contributory by favoring the occurrence of a deficiency in intake of some one or more of the essential dietary factors, particularly with diets having only a narrow margin of safety.

The indications afforded by this study clearly point to an increase in the availability of milk, particularly to an increase of cow ownership, as well as to an increase of fresh meat through the agency of all-year-round meat markets, as important practical measures of prevention and control in communities of the character studied.

ADDENDUM.—After the author's manuscript had gone to press

there came to hand a copy of the "Report of a Committee of Enquiry Regarding the Prevalence of Pellagra among Turkish Prisoners of War" in Egypt (published February, 1919). Among the conclusions reached, the following are of most interest in the present connection:

(1) There is no evidence of the presence of any bacterial infection standing in etiological relation to pellagra.

(2) There is no evidence of infection by any protozoal, spirochetal, or ultramicroscopic organism standing in etiological relation to pellagra.

(3) Pellagra is due to a deficiency in protein, as gauged by the biological value.

J. B. NEAL.

PETREN, G.: **Studies on Acute Nephritis.** *British Medical Journal*, Nov. 22, 1919, No. 3073, p. 662.

In a study of 36 cases of acute nephritis, which did not fall into the two main classes as proposed by Volhard and Fahr, the opinion is expressed that the time has not yet come to attempt to distinguish definitely between the different forms of acute nephritis on the grounds of definite clinical knowledge. In treatment the question is raised whether or not the better results in the later cases were due to the fact that more rigorous exclusion of both salt and protein in the diet, regardless of whether edema was present or absent, was ordered.

L. C. JOHNSON.

MOSCHCOWITZ, E.: **Clinical and Anatomic Relations in Chronic Nephritis.** *Archives of Internal Medicine*, Sept., 1920, No. 3, p. 259.

Moschcowitz argues that glomerulonephritis is always the result of arterial hypertension, the first anatomic lesion to appear being an arterio-capillary fibrosis affecting chiefly the glomeruli. In this light chronic nephritis and arteriosclerosis are one and the same lesion. He recognizes a second form of contracted kidney which is not associated with hypertension or hypertrophied heart and with

which the patient does not die a "renal death". This form is the renal manifestation of the decompensated or senile form of arteriosclerosis. Other nephropathies which the author recognizes are the glomerulonephritis or subacute bacterial endocarditis, in which the glomeruli alone are affected, the amyloid kidney, and the "chronic parenchymatous nephritis" or nephrosis (Epstein)".

T. HOWARD.

JANNEY, N. W., AND HENDERSON, H. E.: Concerning the Diagnosis and Treatment of Hypothyroidism. *Archives of Internal Medicine*, Sept., 1929, No. 3, p. 297.

Latent hypothyroidism is more frequent than is generally supposed. Among 18 consecutive thyroid cases, it was present in 12, 4 cases being dysthyroidism and only 1 presenting classical myxedematous symptoms. Analysis of the clinical data of these cases shows the following to be present in more than 50 per cent: history of obesity, particularly in early life, mental symptoms, marked liability to contract infections, dry, harsh skin, with pigmentation and atrophy, cold extremities, and cold skin generally, obesity, decreased size of thyroid, subnormal pulse, temperature and respiration. Of all this data, lowered temperature, pulse and respiration occur most frequently, being found in 81 per cent of the series. Frequently but few symptoms may be present, diagnosis being impossible without laboratory methods. In the case of children with obscure symptoms the parents should be examined. Attention is called to the diagnostic value of lymphocytosis and mononucleosis in obscure thyroid cases.

The metabolic rate is of great value in diagnosis and treatment of hypothyroidism, but cannot be considered an absolute criterion. It is usually subnormal in thyroid conditions.

The blood sugar was not found to be below normal with the degree of constancy which was expected from the results of previous animal experimentation. It is suggested that this may have been due to the effects of thyroid treatment, although the relation of the treatment to the sugar tests is not given. The authors were at all events able to conclude that a hypoglycemia and a lowered blood sugar curve are more common in hypothyroidism than in hyperthy-

Estimation of nitrogen balance in 2 cases of obscure hypothyroidism showed an inability to retain nitrogen. This was adduced as further evidence that the function of the thyroid gland is anabolic as well as catabolic in nature.

The authors state that the treatment of hypothyroidism is best carried out with Kendall's thyroxin and controlled by estimation of the basal metabolic rate.

T. HOWARD.

VON REY, H.: **Differential Diagnosis of Acute Miliary Tuberculosis.** *Berliner klinische Wochenschrift*, June 14, 1920, No. 24, p. 558.

During the year 1919 the author had 10 cases under observation. From a differential standpoint typhoid fever seemed to be the most difficult to exclude. He sometimes found the Widal positive even in unvaccinated cases or in cases with no history of typhoid. Even the presence of typhoid organisms in the stool may not speak for typhoid as these are reported in carriers. Miliary tuberculosis and typhoid sometimes coëxist. The author lays great stress on a leukopenia with a high poly count as favoring miliary tuberculosis. In typhoid there is usually a relative lymphocytosis. In none of the 10 cases were choroid tubercles found during life, and yet at autopsy some of the cases had tubercles in the anterior part of the choroid which were inaccessible to the ophthalmoscope. Some of the cases resembled puerperal sepsis, as they occurred postpartum. One case began as a manic depressive insanity. Great stress is laid on the demonstration of miliary tubercles radiographically and on the discovery of tubercle bacilli in the spinal fluid.

H. JOACHIM.

HICKEY, J. P.: **The Diagnosis of More Common Helminthic Infestations of Man.** *Public Health Reports*, June, 11 1920, No. 24. pp. 1383-1400.

Heretofore, the subject of intestinal parasites has not been sufficiently emphasized and consequently there is a lack of knowledge of the prevalence of disease caused by them. It had been considered

of value only to physicians in tropical countries, and until fecal examinations become routine in our country, many causes for disease will go unobserved.

Several methods of examination for ova have been found effective both for sputum and feces.

The clinical courses of diseases due to parasitic worms are not unlike conditions of a different etiology with which we are familiar in this country. There are, however, instances of infection by the *Schistosomes* in which there will be intervals when no egg will enter the lumen of the intestines; in such cases the presence of an eosinophilia should attract attention, even though it is not always a trustworthy sign as far as infection by animal parasites is concerned, since an eosinophilia is present in some cases and absent in others. Generally speaking, the author is led to the conclusion that while the various clinical symptoms and signs usually attributed to helminthic infestations may be present in endemic areas where aggravated cases are met with, many exceptions will be found, especially as stated above, in light infections.

Indications of anemia, especially in hookworm infections, were often present, though in not a few instances there were no marked indications of the condition. In infections by the *Dibothriocephalus latas*, anemia was constant, examination of the blood showing decided decrease in hemoglobin in both children and adults. As this parasite is not of the blood-sucking variety, the anemia is probably due to the absorption of toxic substances that have been liberated by the worm.

The number of round worms that may be harbored by a young child is almost incredible. In many instances there were no outward signs suggesting the presence of the parasites and the attention was often attracted to the condition by the child's having vomited a few worms. From the bulk of worms that may be expected, one would wonder that there was sufficient unoccupied lumen for the aliments.

There came under observation a case of polyparasitism which harbored the following organisms: *Ancylostoma duodenale*, *Trichostrongylus orientalis*, *Paragonimus ringerie*, *Trichuris trichiura*, and *Acaris lumbricoides*. The eosinophil count was 6 per cent. In another individual in which the *Paragonimus ringerie* did not participate, and in which *Fasciolopsis buski* completed the ensemble, the case presented an eosinophilia of 10 per cent. The individual

showed excellent physical development, which indicated that parasitic infections are not always concomitant with poor physique. Aggregations of this sort are quite frequently met with. In infections by the blood and liver flukes, the number of ova present may seem to indicate a heavy infestation, though a careful physical examination of the individual may fail to reveal structural changes.

Helminthic infections may, in some instances, go on to a fatal termination without their true etiology being recognized; the clinician is unable to determine their existences, because of the erratic migration of the parasites or of secondary localization which may produce symptoms in areas other than those of their usual habitat. The existence of the parasites in these cases would have been ascertained by the finding of a proglottis of the worm or its ova in the feces.

Some worms that were formerly thought to be deleterious only by their mechanical action have been shown by recent investigations to be capable of either liberating toxic substances or by the erratic migrations of the adult parasite or their embryos, of producing tissue changes of grave import. In this respect attention is called particularly to the results of the recent investigations concerning the life history of the *Ascaris lumbricoides*, which show that the embryos of the good-natured "stomach worm" of a few years ago were capable of invading the lungs. (Ransom and Foster state that infection by this worm should be considered when dealing with pulmonary affections in children).

J. B. NEAL.

MALONEY, H. E.: A Case of Purpura During Serum Disease. *The American Journal of Medical Sciences*, April, 1920, clix, Part IV, No. 577, p. 555.

A patient twenty years of age had Type I pneumococcus infection. Intracutaneous tests were performed and all were negative. He responded in three days to two injections of 100 c. c. (3.38 fluid ounces) each of serum. On the seventh day after the first serum administration he developed a general lymphatic glandular enlargement, with patches of erythema and urticaria followed in a few days with diffuse papular erythema of the whole body. His temperature

rose to 102.4° F. (40.4° C.). The elements of blood coagulation were normal, and it is therefore probable that the purpura was due to the presence of a toxin associated with the attempt of the body to eliminate the foreign protein. The evidence points to the capillary walls as the site of the lesion. Some cases of purpura of unknown etiology may be caused by the same type of intoxication which was present in this case.

A. T. Mays.

DEAKE, C. ST. C.: **Influence of the War on Preventive Medicine and Public Health.** *Transactions Section on Preventive Medicine and Public Health, American Medical Association, 1919.*

That a definite turning point in public health activity has been marked by the war is evident. There lies before us a period of reconstruction and reorganization in methods of health administration. Our experiences have made it clear that not only are both military and industrial power dependent upon man power, but that the strength and efficiency of our man power are determined in the last analysis by the health of the individual. Disease prevention will be regarded as more important than disease suppression and health promotion will take precedence over both.

During the war, health became a matter of the utmost importance. It acquired a new practical value which for the first time in our national life has come to be appreciated by all intelligent people. Valuable and disconcerting facts as to the physical condition and health of the people were brought to light. This gave an opportunity to try out the efficiency of modern preventive measures. Public health work was given adequate financial backing as never before. For the first time, we were able to demonstrate in a large way that good health is a purchasable commodity. The American people have passed favorable judgment on the results of this demonstration. The experiences of European warring nations before we entered the war aided in the forming of our progressive policy. We entered at a critical period when everything depended not only upon the character of our military forces but also upon the productive ability of our industries. A new lesson has been learned as to the importance of individual and national health in war. Now, while hostilities have

ceased, the period of reconstruction will make large demands on the physical resources of the nation and the people as a whole stand ready to continue and extend health activities which proved so effective during the past two years.

The findings of the exemption boards and army medical examiners were the first awakening shock. Almost 20 per cent of the young men were rejected for military service because of physical disability largely preventable in character. The value of periodic physical examinations of presumably healthy persons for the early detection of disease, was thus conclusively demonstrated. In the past such measures have been too generally ignored.

Tuberculosis and the venereal diseases were shown to be the most prevalent. These findings led to the prompt establishment of a large corps of tuberculosis experts for army service and in the establishment of large sanitoriums for returned consumptive soldiers. As a result, extensive activities have sprung up in states and in communities in which this disease had previously been ignored. Such states are finding the people and medical profession anxious now to coöperate in enforcing restrictions and regulations for the control of tuberculosis. In one state alone where few public sanitoriums had existed, forty such institutions with attendant dispensaries and community nursing service have been created within two years by popular vote.

There is now a changed public sentiment in regard to the importance of the venereal diseases. The reluctance of health officers, the public and the press to deal frankly with these ailments had led, previously, to only half-hearted campaigns of education. Although all other communicable diseases which beset the armies of the civil War had been practically eliminated, gonorrhea was found in the army of 1917 to be largely increased over that of 1861. Under the provisions of the Kahn-Chamberlain law, the medical departments of the government have attacked the venereal disease problem not only of the soldiers but of the civil population. A new line of action has been established from which health officers in the future will never recede. Discussions before general audiences are given without hesitation. Educational and restrictive measures are being carried out to a degree not possible before the war placed accent on the true conditions.

Unusual interest has also centered in the field of child welfare

work. This has been influenced greatly by the acute problem of a decreasing birth rate and greatly increased death rate which have confronted France and Belgium. It is now recognized that much of the physical inefficiency disclosed by the examining boards might have been avoided if, in the past, there had been more intelligent thought on the subject of child conservation. The generally recognized fact that the span of human life has been increased about six years during the past generation, has been found largely due to the prevention of infant mortality. In the present work, the chief efforts are directed toward keeping the baby well—thus following a line of health promotion rather than that of disease prevention. To this end, public health organizations are developing infant welfare stations, community nursing and other factors that are relatively new.

It is inevitable that the clinical activities of health departments will be increased. Heretofore, such departments have rendered service only in the diagnosis of contagious and infectious diseases of the epidemic type. If the war policies be continued and extended, such services must be increased to include other types; for example, the *early* diagnosis of tuberculosis so essential to recovery, the reeducation of victims of poliomyelitis and so on. Such extension, contrary to the opinion occasionally, will prove directly beneficial to the medical profession. It has been found that where such public clinical work has been undertaken there is a decidedly increased demand for professional services among patients of private physicians. Public health work of this kind includes every activity that will increase physical efficiency of the individual or the community or which will restore the unfit to the highest point of health.

The return to civil life of the thousands of physicians who during their military service have received intensive training in sanitation and preventive medicine, will have a tremendous effect in altering the public mind in regard to health administration. Doubtless a large number of such men will form an unusually competent group of health officials. Others in returning to private practice will exercise a new and salutary influence on their communities. In addition to this, approximately 4,000,000 young men will be scattered throughout the nation—men who have had impressed on them in no uncertain terms the paramount importance of disease preven-

tion and health promotion. They have seen the advantage of yielding cheerfully to reasonable health regulations. As they assume leading parts in their community affairs during the next generation they will influence materially the history of preventive medicine in the future.

The greatest changes will come however, out of the tremendous interest in public service created during the war. Many large extra governmental organizations were engaged in various phases of patriotic and philanthropic work. With the war won, these organizations have been casting about for desirable fields for the expenditure of their energies. In many instances they have settled on some public health activity. This has created a situation which is disturbed and unique, full of possibilities for splendid progress and equally full of possibilities for confusion, overlapping, conflict and wastefulness.

This great popular interest will doubtless serve to stimulate the governmental health agencies to greater activity and will overcome official apathy and conservatism. If the volunteer agencies can be properly coördinated under governmental guidance, they can be a tremendous influence for good. Unguided, however, the very multiplicity of organizations, the ease with which private funds are now obtainable for health purposes and the lack of uniformity in views and methods, will lead to wastage in money and effort and to the ultimate weakening of public health endeavor. The war has left us in a critical condition, full of possibilities for good and bad, in which sound judgment and firm policy by health authorities are imperatively needed.

J. B. NEAL.

UMBER, F.: **Acute Yellow Atrophy of the Liver** (Zur akuten Leberatrophy). *Berliner klinische Wochenschrift*, Feb. 9, 1920, No. 6. p. 125.

Attention is called to the increased frequency of this disease. The author saw 7 cases in the past year. Ewald saw no case in Berlin in 15 years. He attributes the increase of cases in Germany to the change of diet necessitated by the war with its resulting gastro-intestinal catarrhs, complicated by infections of the biliary passages

—an enterogenous cholangitis. The finest biliary passages become involved, a cholangitis with autolysis of the liver cells.

As a characteristic sign the fetor hepaticus is mentioned, a sweet aromatic odor to the expired air. Ascites occurred in an uncomplicated case which came to autopsy.

H. JOACHIM.

HAYEM, G.: Exploration of the Abdominal Painful Points by the "Hammering" Method (Exploration des points douloureux abdominaux par le procédé du martelage). *Bulletin de l'Académie de médecine*, Paris, Feb. 24 and March 2, 1920, Nos. 8, 9, 10, p. 173.

One of the first symptoms to appear in case of abdominal trouble is pain. This abdominal pain can be spontaneous, like in all cases of gastric neurosis, or it can be detected only when a slight pressure or a strong one is exerted upon the abdominal wall. This kind of pain is present in case of ulcers, cancer, peritonitis, etc. The pain which the author calls provoked pain (*douleur provoquée*) is detected most frequently by pressing with one or two fingers in a perpendicular direction on the surface of the abdomen. Generally this pressure is exerted upon the points corresponding to the zones in which the patient complains of feeling the spontaneous pain. The pain provoked by this means is not constant at all as far as its intensity is concerned, for this depends upon the amount of pressure exerted. This disadvantage can be avoided by the use of the algosimeter devised by Boas, and the esthesiometer invented by Roux. But this apparatus has a drawback in that the results depend upon the amount of relaxation or contraction of the abdominal muscle. It is well known that in many cases it is impossible to obtain the relaxation of the abdominal wall.

The author has perfected a special method which he calls "hammering" (*martelage*). He observed that percussion would often cause pain, so he decided to use it in the detection of painful points. He sounded directly and perpendicularly, using his middle finger as a small hammer. After several experiences he found that the strength of the percussion necessary to produce pain was variable and that measuring of this strength would be valuable in diagnosis. Following this idea, he devised a special hammer which has a small me-

chanism which measures the intensity of the shock. The scale of this apparatus is divided into grams from 200 to 1000. There is also another model which measures shocks of intensity variable between 50 and 200 grams.

The author states that the patients are very sensitive to this hammering method. He observed that in some cases a strong shock produced no pain, while a weaker shock produced pain. He also makes the remark that any pain produced by this hammering method has a visceral significance, and that the affected organ has to be looked for by other diagnostic means.

C. F. ARROYO.

ZAMBRZYCKI: **Beri-Beri and Inanition Edema** (Beri-Beri und Edemkrankheit). *Berliner klinische Wochenschrift*, May 24, 1920, p. 492.

The study of edema has lately become of increased interest on account of its frequency in Germany where it arose from disturbed nutrition. The author suggests a new classification of extra renal nutritional edemas. The first class is that in which edema is the most characteristic symptom; to the second class belong the types with preponderating nerve symptoms; to the third class, the hemorrhagic type. He quotes the following case: A fifty-seven-year old patient had been engaged in the rubber traffic in Brazil for twenty years. Most of the time was spent on the Amazon in canoes. The diet consisted chiefly of canned meats, game that he hunted and rice. No milk, bread, sugar, fats, or fresh vegetables were included in the dietary. After eight years of this diet the patient began to notice an edema of the ankles which gradually ascended to the abdomen. A few months later hyperesthesias and paresthesias developed; these were followed by motor paralysis of the extremities. Later a large hematoma developed on the left thigh which was incised. The patient complained of breathlessness and palpitation. The edema lasted two years and the paralysis for five years.

The author thinks that the war edema in Germany is similar to beri-beri except that the former is accompanied by a bradycardia. In war edema there is also an azotemia which is not of renal origin but due to a breaking down of tissue such as occurs also in leukemia.

He believes that the edema is of cardiac and vascular origin. In beri-beri there is an absence of a phosphorus containing vitamin. War edema responds readily to yeast, malt extract, and fat.

H. JOACHIM.

McDONAGH, J. E. R.: The Treatment of Bilharziasis with Antimony. *Journal of Tropical Medicine and Hygiene*, 1920, xxiii, 165.

Antimony was first used in bilharziasis because it was successful in cases of sleeping sickness in which it was no longer possible to use arsenebenzene, which had been tried in bilharziasis and was of no use. Tartar emetic had proven very useful in the treatment of *ulcus molle*, *serpiginosum* and gonorrhea. Antimony seemed to be the best metal to use where either bacteria or protozoal parasites were intracellularly situated. In such infections antimony stimulates the oxidizing power of the serum. There is a question as to whether this is the mechanism in bilharziasis or whether the metal kills the worm directly. Tartar emetic, antiluetic, and colloidal antimony all give good results but tartar emetic is the most convenient to use. The tartar emetic is used in doses of $1\frac{1}{2}$ grains (0.09740 gram) diluted to give a volume of 100 c. c.; this is given intravenously. If the solution is not sufficiently diluted, venous thrombosis and a mild shock may result with violent fits of coughing and a feeling of constriction around the neck and occasional swelling of the lips and tongue. Ten injections at five-day intervals is the average number required. A number of cases have been under observation for eight years and there has not been a relapse.

F. HULTON-FRANKEL.

MAUNSELL, C. E.: Some of the Clinical Symptoms of Appendicitis Compared with the Lesions Found at Operation. *The Dublin Journal of Medical Sciences*, August, 1920, Series IV, No. 6, p. 265.

The author divides cases of appendicitis into two large classes and a third or hybrid class in which the symptoms alter from one class to another during the course of an attack. The first class he calls "primarily inflammatory". This represents the ordinary

case of appendicitis with a more or less gradual onset and typical symptoms so that diagnosis is easy.

The second class he calls "acute obstruction of the appendix". Here, in a typical case, there are three definite stages. At first the onset is very sudden, and there are severe and griping pain and vomiting; the temperature is normal, while the pulse may be infrequent. The symptoms may resemble those of acute intestinal obstruction. Operation at this time shows the lumen of the appendix to be completely occluded by a concretion, an inflamed stricture, a kink or a band, and that the portion of the appendix distal to the obstruction is tense and acutely inflamed. The symptoms of this stage last about 12 hours and often disappear so that the patient feels well and wants to leave his bed and move about. This is the quiescent period or second stage. Operation during this stage shows an obstructed appendix which has become gangrenous, in whole or in part; the lower abdomen is full of peritoneal exudate.

The last stage presents a clinical picture of acute septic peritonitis. The author emphasizes the fact that it is this obstructive type of appendicitis in which diagnosis is so often wrongly made.

G. A. DISTLER.

GASKELL, J. F., AND MILLAR, W. L.: **Studies on Malignant Malaria in Macedonia.** *Quarterly Journal of Medicine*, July, 1920, xiii, No. 52, p. 381.

The following conclusions were drawn from a study of malaria in the Serbian Army during a period of two years and should be of interest to all students of malaria.

(1) The pathological changes of malignant malaria depend upon the toxin liberated by the parasite. This chiefly affects the endothelium of the blood-vessels and the tissues of certain organs, especially the brain, heart, liver and spleen.

(2) The pathological processes which lead to death are of three kinds; the first, or true cerebral type, is characterized by signs of definite cerebral lesions and paralysis consequent thereon. The lesions are definite hemorrhages in the white matter due to fatty degeneration of vessel walls. The brain has here assumed the function, usually associated only with the spleen and bone marrow, of manufacturing all forms of the parasite in numbers.

(3) The second, or septicemic type, is associated with an intense general toxemia, which is marked by signs of cerebral irritation, leading to coma, and to rapid dilatation and failure of the heart. This toxemia is due to a rapid general increase of the parasite, owing to development of the asexual cycle throughout all organs of the body and also in the peripheral blood.

(4) The third, or cardiac type, is characterized by signs of heart failure only, without cerebral signs. The heart failure is caused by chronic degeneration of the heart muscle, to which is added a terminal invasion of the body.

(5) Treatment in cases of the cerebral type was without result, as no sign of its approach could be discovered. Treatment of the second type was more successful.

(6) The limit of safety is five thousand parasites per cm. Any count higher than this calls for energetic intravenous treatment with quinine. The cardiac cases should be treated by vigorous intravenous methods if necessary; the condition of the heart does not contraindicate this.

(7) Polymorphonuclear myelocytes are almost always present in the peripheral blood in the severe anemia of chronic malaria; their presence is of value when no parasites can be found. The malignant parasite is believed to be stored up, during quiescent periods, around the nucleus of the cardiac muscle fiber and it may also be stored in unstriated muscle.

(8) The disappearance of the malignant parasite from the peripheral blood is not so rapid as that of the benign, for which it is almost useless to search after quinin has been given; the malignant parasite disappears in two or three days from the peripheral blood under intravenous quinin therapy.

C. F. NICHOLS.

HENDERSON, P. S.: Tetany and the Administration of Alkalis. *Quarterly Journal of Medicine*, July, 1920, xiii, No. 52, p. 427.

This investigation was made in an effort to confirm the statement of Howland and Marriott, that it is not unusual to see the symptoms of tetany develop in cases of acidosis treated with bicarbonate of soda. This series consisted of 19 children suffering

from various grades of diarrhea, enteritis, pyuria and pyelitis. These cases all received alkali in doses exceeding that reported by Howland, but in no case did any sign of carpopedal spasm or facial phenomenon develop. This investigation lends no support to the idea that tetany may develop from the administration of large doses of alkali.

C. F. NICHOLS.

MCLAUGHLIN, A. J.: **Epidemiology and Etiology of Influenza** (The Shattuck Lecture). *The Boston Medical and Surgical Journal*, July 1, 1920, clxxxiii, No. 1, p. 1.

The paper presents a careful historical review of influenza and an analysis of the data. The conclusions follow:

(1) It is a disease of great antiquity, and the cause of the world-wide pandemics and interpandemic outbreaks is the same.

(2) There is a strong predilection for the winter months and we have influenza with us every year. In retrospect we can detect in the mortality statistics outbreaks reaching epidemic proportions in twenty-two out of the thirty years since 1889.

(3) In 1918-19 the attack rate varied from 15 to 40 per cent, and seemed highest in the age group five to nine, declining in each successive group except twenty-five to thirty-four which exceeded the rate for the group fifteen to twenty-four.

(4) The incidence in 1918-19 was greater in females and the disparity was most noticeable in the ages from twenty-five to forty, indicating that the females of that age were either more susceptible or more intimately exposed to infection than the males of corresponding age.

(5) Case fatality was about 2 per cent and was slightly higher in females under fifteen and very much higher in females over 60. From fifteen to sixty the case fatality was much higher in males.

(6) There was great variation in forty large cities in the explosiveness of the epidemic and in the severity as measured by the excess death rates for the entire epidemic period. There seemed to be some correlation between explosiveness and the severity as measured by excess death rates, the greatest mortality being usually not

always in cities with a high explosive index. There was little consistency in the explosiveness of the two epidemics, 1918-19 and 1920. Cities with a high explosive index in 1918-19 often had a low index in 1920. Most cities with a high explosive index for 1920 had a low index for 1918-19. There seemed to be some correlation between high explosiveness and the general death rate and the rates of the four principal causes of death—pneumonia, tuberculosis, heart disease, and nephritis. There seemed to be considerable correlation between the total excess death rates for the epidemic periods and the general death rates and the death rate of pneumonia, tuberculosis, heart disease, and nephritis.

(7) All the evidence points to an immunity of relatively short duration—probably of months rather than years.

(8) The etiologic cause is unknown. There is not sufficient evidence to warrant the view that *Bacillus influenzae* is anything more than a secondary invader. The claims for a filterable virus are strong but much additional work will be necessary to make certain many things which are now only possibilities.

(9) A survey of the whole field and all available literature convinces the author that while further epidemiologic studies will have great value and be of intense interest they will not furnish a solution of the problem. We must have more intensive, comprehensive, and sustained laboratory research using the body fluids and secretions of influenza cases for material if we hope to solve the problem and secure the biologic aids which we now lack for the prophylaxis and treatment of influenza.

M. M. BANOWITCH.

KOSIKOW, M. J.: Pneumonia in a Woman with an Habitual High Blood-pressure. *The Boston Medical and Surgical Journal*, July 1, 1920, clxxxiii, No. 1, p. 23.

A woman, of fifty-four, had a systolic blood-pressure, for two years never less than 225 and at times as high as 275. She contracted pneumonia and on the third day thereafter the pressure fell to 160 and continued to fall until it reached 130, at which time the crisis began and the dullness reached its height. From this time with the gradual fall of temperature, pulse, and respiration, the blood-

pressure began to climb again, the diastolic slowly, the systolic quite rapidly, until within three weeks it reached systolic 230, diastolic 100, almost her habitual pressure. The author interprets it to indicate that high pressures should be left alone if the cause cannot be determined and removed. High pressure in itself is merely nature's means of self defence.

M. M. BANOWITCH.

KLEIN, T., AND TORREY, R. G.: **Pulmonary Complication of Paratyphoid Fever, with a Report of Four Cases.** *The American Journal of the Medical Sciences*, April, 1920, clix, Part 4, No. 577, p. 548.

Four out of 6 cases of paratyphoid studied in the past four years have presented severe pulmonary disturbances during the course of infection. There is a definite pulmonary form which may be easily mistaken for any of the acute respiratory infections. The pulmonary symptoms and findings often precede any intestinal manifestation. Bronchopneumonia is the most alarming complication. Bacilli are found in the sputum, and we must recognize the fact that bronchial infection may result in the patient becoming a chronic carrier of as well as being a means of spreading the infection. The bacilli have been isolated from the purulent discharges of a chronic purulent otitis media, caused by other infections previous to the paratyphoid, and found as late as sixty-five days after the beginning of the illness. Organisms were also isolated from the secretions of pyorrhea. It is always advisable to examine the sputum of certain types of chronic pulmonary invalids for this group of bacilli.

A. T. MAYS.

JOSUE, O.: **Congenital Stenosis of Pulmonary Artery with Interventricular Communication.** *Societe medicale des hopitaux*, May, 1919; abstracted in *Archives des maladies du Coeur*, Feb., 1920, p. 85.

This is a case of a young girl who was reported to be suffering with cyanosis and clubbing of the finger tips, a systolic intense murmur with a rumbling thrill over the pulmonary area.

The electrocardiograms present a particularly interesting characteristic with a complete blocking of the left branch of the bundle of His. In lead 1, one finds a lowering of the wave which is very deep; in lead 3, R is very high. Both of these indicate hypertrophy of the right ventricle and which in this case, follows the pulmonary stenosis. There is a widening of the Q R-S wave to .14 of a second. There are a number of small notches along the S wave in lead 1 and in the R wave. The wave has a tendency to be continuous with the Q-R-S; the P-R interval is also increased.

These are the signs of blocking of the left branch of the bundle of His, signs which do not occur in simple hypertrophy or in pure pulmonary stenosis. The explanation of this condition is the defect in the wall of the ventricle just below the membranous septum which intercepts the course of the left bundle branch.

M. H. KAHN.

LEOPOLD, R. S.: **A Case of Massive Lipoma of the Mediastinum.**
Archives of Internal Medicine, Sept., 1920, No. 3, p. 274.

The case is reported of a man of thirty-seven years who gradually developed cough, extreme dyspnea and signs of intrathoracic pressure. He lived something over fifteen months from the beginning of symptoms. At autopsy there was discovered a fatty tumor weighing seventeen pounds, six ounces, which completely filled the anterior mediastinum, crowding the thoracic viscera back against the posterior wall of the chest. The author was able to find but 4 similar cases recorded in the literature.

T. HOWARD.

BESREDKA: **About the Action of Serums Administered through the Respiratory Apparatus** (De l'action des serums par la voie respiratoire). *Annales de l'Institut Pasteur*, Jan., 1920; abstracted in *Progres medical*, Feb. 14, 1920, p. 111.

The author thinks that the respiratory apparatus is the ideal way of administering serum to man. The advantages are: the rapidity of absorption, the avoidance of the anaphylactic danger,

and the simplicity of the operatory technic. The introduction of the serum into the trachea can be made by means of a sound or by puncture. The amounts of serum absorbed by this method are enormous. The serum can have a semi-solid consistency, thus lessening the possibilities of provoking an anaphylactic shock.

In fresh test animals laryngeal administration of serum is absolutely harmless; while in sensitized animals it may provoke a fatal shock.

C. F. ARROYO.

GRAHAM, E. A.: **Asphyxia** (L'Asphyxia au Point de Vue Chirurgical).
Proceedings *Fifth Congres International de chirurgie*, July 19, 1920; reported in *La Presse medicale*, July 24, 1920, xxviii, No. 51, p. 508.

Four conditions can produce asphyxia: Obstruction to the entrance of air, inability of the blood to absorb oxygen and excrete carbon dioxid, disturbance in the blood circulation, and inability of the tissues to use oxygen.

(1) *Asphyxia Produced by Obstruction to the Entrance of Air.*—Besides intrapulmonary alterations, e. g., inflammatory exudates or edema, a large number of these cases are due to liquid pleural effusions or pneumothorax, which are of great interest to the surgeon. The mediastinum, normally, has a considerable degree of mobility. When a pneumothorax, for example, is produced in a healthy person, the pulmonary collapse is localized not only to the affected side, but pressure is also exerted on the healthy side through the mediastinum. Only in patients who have abundant adhesions can a difference be noted between the two sides. Graham has established a mathematical formula, which enables him to determine the limits of a thoracentesis, which are compatible with life.

(2) *Inability of the Blood to Assimilate Oxygen and Excrete Carbon Dioxid.*—There is a disturbance in the power of the blood to assimilate oxygen, either because of a marked decrease in the hemoglobin content, or because the hemoglobin has united with some other gas, e. g. carbon monoxid.

The inability to excrete carbon dioxid depends upon an acidosis.

(3) *Disturbances in the Blood Circulation*.—Local asphyxia occurs following some obstruction to the blood flow, e. g. compression, thrombosis, ligation. The phenomena seen in cases of cardiac decompensation are also dependent upon a circulatory disturbance, as are also the phenomena of shock, pneumothorax, etc.

(4) *Inability of the Tissues to Utilize Oxygen*.—This inability explains the asphyxia occurring in anesthesia, diabetes, and poisoning by phosphorus, etc.

S. KAHN.

BARD, L.: The Diagnosis of Syphilitic Tumors in the Stomach and Intestines (On diagnostic des tumeurs syphilitiques de l'estomac et de l'intestin). *Archives des maladies de l'appareil digestif et de la nutrition*, Jan., 1919, x, No. 1, p. 1.

The author reports a short series of gastro-intestinal cases with luetic tumors and mentions the clinical findings which he believes are evidence in the differential diagnosis between malignancy and lues.

Case 1.—A male, 71, was very emaciated and complained of marked gastro-intestinal discomfort and had evidence of a certain degree of pyloric stenosis. On palpation a hard mass could easily be felt at the pylorus. The mass could be moved freely and was not tender. The patient was put upon mercury and potassium iodid and marked improvement was noted after two months. After seven months the tumor had completely disappeared and the patient had completely recovered.

Case 2.—A male of the same age had showed symptoms of ileum stenosis for over a year. Exploratory operation had been performed upon this individual for malignancy, but the surgeon decided against resection. This individual gave a history of lues and had a son born deaf and dumb. Following the laparotomy the patient lived in comfort for ten years and died with a Stokes Adams syndrome.

Case 3.—A female of 46 had been operated upon two years before she was examined by the author and a gastro-enterostomy was performed for what was considered to be an inoperable cancer of the stomach. When examined by the author the patient had definite

evidence of tabes with a positive Wassermann in both the blood and spinal fluid. The surgeon's report described the tumor as movable and only slightly tender.

Case 4.—A male of 60 gave a history of having had a chancre at the age of twenty-two and of having suffered gastric disturbances for five years. Palpation showed a freshly movable indurated mass in the neighborhood of the cecum which was not tender to the touch but appeared to be adherent to the cecum. No cachexia was present. The patient was operated upon and the mass was removed. The author was unable to get a fragment of the tissue and was therefore unable to prove conclusively that the growth was luetic.

H. M. FEINBLATT.

ETIENNE: **Vascular Syphilis.** *Congres Francais de medecine*, xiv; reviewed in *La Presse medicale*, May 29, 1920, xxviii, No. 35, p. 344.

Eighty to eighty-five per cent of patients suffering with simple aortitis, are syphilitic.

The point of election of syphilitic aortitis is the region just beyond the aortic valve, whence the lesion extends to the valve itself. The valvulitis may involve the mitral valve also.

Occasionally, with no valvular involvement, the aortic dilatation may result in a functional aortic insufficiency (Hodgson's disease).

The aortitis may gradually extend to the coronaries, with a resultant myocarditis and left ventricular insufficiency. This may be the starting point of angina pectoris, which is so commonly associated with syphilitic aortitis, or of a pulmonary edema.

All cases of aortitis, and all cases of aortic valvular disease, should be treated as syphilitic, unless there is a definite rheumatic history. The specific treatment will not cause a disappearance of the vegetations or the atheromatous plaques, but it will prevent an extension of the lesion, as well as the formation of an aneurism. Mercury alone should be used, since arsenobenzol may cause a pulmonary edema, and iodids may also cause edema if the kidneys are not functioning normally.

Syphilis of the veins is not a rare condition, but it has so slow a progress, that it is unrecognized unless carefully searched for.

There are five varieties:

- (a) Phlebitis of the superficial veins.
- (b) Phlebitis of the deep veins.
- (c) Visceral phlebitis.
- (d) Venous gummata.
- (e) Varicose ulcers.

Syphilitic phlebitis usually occurs in the internal saphenous vein, and is usually bilateral. It disappears in from two to six weeks after the treatment has been begun, but some induration may remain.

The type of phlebitis of the deep veins resembles *phlegmasia alba dolens*.

In the viscera, the small venous radicals are involved, usually a periphlebitis, occasionally an endophlebitis resulting. Together with endarteritis, endophlebitis is the cause of many visceral interstitial or parenchymatous lesions.

S. KAHN.

BAYLE: Vascular Syphilis. *Congrès Français de médecine*, xiv; reviewed in *La Presse médicale*, May 29, 1920, xxviii, No. 35, p. 342.

The mechanism of the production of the lesions in vascular syphilis has been explained in three ways:

(1) The spirochetæ localize in the heart and vessels. Although this seems plausible, it should be noted that only very rarely are the organisms found in the diseased vessel walls. Apparently the vessel wall is altered and destroyed not by the spirochetæ directly.

(2) The toxins eliminated by the spirochetæ are the cause of the lesions. Experimental work along this line, however, has always given negative results. It is possible that a general sclerosis of the vascular system is due to a slow but prolonged action of spirochetal toxins.

(3) The vascular lesions are caused by a sensibilization of the body to toxins arising from other causes, and are not due to the direct action of the spirochetes, nor to the action of the toxins of spirochetes.

S. KAHN.

OELZE, F. W.: **On the Treatment of Tertiary Syphilis with Dijodyl** (Ueber Behandlung tertiarer Lues mit Dijodyl). *Dermatologische Wochenschrift*, Bd. 71, Nr. 37, p. 743.

Oelze recommends the use of dijodyl for the treatment of cases of tertiary syphilis. Dijodyl has the formula $C_{18} H_{32} O_3 I_2$ and contains 46.2 per cent iodine. It passes through the stomach without alteration and saponification takes place in the intestine. Thus one sees the convenience of this preparation and its advantages when compared with potassium iodide. The patients tolerate it very well and the author failed to observe any after effects. Some cases presented sneezing. Pharmacologically dijodyl was experimented with on animals by Hoos and Wolf and the favorable results obtained by these authors were confirmed by Oelze in experiments on man. Seeger (*Deu. med. Woch.*, 1919) has studied its elimination. The author reports a clinical history which he considers representative of all cases treated by him with dijodyl. The dosage used by Oelze was from 3 to 5 tablets (each tablet contains 0.3 gram, or approximately 5 grains of dijodyl) daily. All the patients improved rapidly. The amount of iodine taken by the patient in one month when treated with dijodyl is inferior to the amount taken when treated with iodide of potassium, and the results are better with the former drug.

C. F. ARROYO.

SMITH, W. A.: **Arsphenamin and Neoarsphenamin.** *The Journal of Laboratory and Clinical Medicine*, May 5, 1920, v, No. 8, p. 518.

On March 4, 1918, the Federal Trade Commission adopted certain rules for the manufacture of the above products, stating that these products are to be named and labelled arsphenamin and neoarsphenamin respectively; that the products are to be sold only in colorless glass ampules, containing an atmosphere of an inert gas; that the arsenic content of arsphenamin must be between 29.5 and 31.57 per cent and that the arsenic content of neoarsphenamin must be between 18 and 20 per cent; each lot must be tested for its arsenic content and toxicity. These restrictions have done a great deal toward making the products on the market safe for use and have reduced the number of unfavorable reactions following injection.

Reactions.—The unfavorable reactions have been classified as due to drug toxicity, errors of technique, and a peculiarity of the patient. Ampoules should be tested for leaks, as oxidized arsphenamin is toxic. Chemically pure NaOH and freshly distilled water are essential. Water containing Ca and Mg causes more reactions than otherwise. Incomplete neutralization of arsphenamin solutions has accounted for many reactions. Filtration is essential. Vasomotor reactions may be controlled by epinephrin.

Use in Therapeutics.—These drugs, while used primarily in syphilis, have been found of value in several nonsyphilitic conditions, such as frambesia, relapsing fever and Vincent's angina, amoebic dysentery, anthrax and malaria, septicemia and yellow fever.

Relative Value of Arsphenamin and Neoarsphenamin.—In regard to toxicity the neoarsphenamin is two and one-half times less toxic for white rats than arsphenamin. Arsphenamin in practically all concentrations hemolyzes red blood-cells *in vitro*, while neoarsphenamin does not do so in any concentration if it is normally used. Neoarsphenamin is usually better tolerated than arsphenamin.

Curative Powers.—Arsphenamin is more curative than neoarsphenamin, the arsenic content of two parts of the former being equal to three parts of the latter. Schamberg concludes that the arsphenamin is more active therapeutically, but this difference is made up by the discrepancy in tolerated dosage. Nine-tenths gram (13.89 grains) of the neo-compound can be given three times a week, and it creates much less biochemical disturbance in the blood and tissues.

C. M. ANDERSON.

SALZMAN, S. R.: Tonsil Infections. *Medical Record*, July 17, 1920, xviii, p. 85.

Salzman states that when a child which has been subject to attacks of infectious tonsillitis reaches the age of fourteen or fifteen and the attacks subside, it is generally believed that the infection has subsided. It is at this time, however, that the systemic efforts become manifest slowly and insidiously.

After discussing the relation of tonsillar infection to infective diseases of gastro-intestinal tract, heart, kidney, and joints, he de-

scribes a common type of chronic tonsillar infection which is manifested by constant fatigue and lassitude. This is frequently wrongly diagnosed as neurasthenia. He also calls attention to the association between tonsillar infection in thyroid disease, both toxic and non-toxic.

Angina pectoris occurring during the period of rest is always suggestive of focal infection, and here again the tonsil must be carefully investigated, along with other sources of focal infection.

The author has seen psoriasis, pompholyx and other infectious dermatites clear up and remain so after the removal of badly infected tonsils. Although he does not mean to imply that all these conditions are invariably due to infections, he is convinced that infection plays an important rôle.

In determining whether tonsils are infected or not, it is not sufficient to look into the throat to see if they appear very large and inflamed. It is necessary either to hook the tonsil out of its fossa or by retracting the anterior pillar of the fauces to bring it into view. Then, by pressure, pus may be expressed from it. A red inflamed anterior faucial pillar almost always indicates diseased tonsils. Tonsils which have been subject to one or more attacks of peritonsillar abscess are usually infected. Small submerged tonsils with no visible crypts from which pus can be expressed are best examined with the finger; palpation will reveal hard, shotty, and nobby masses within the tonsil.

These patients also show occasional painful nodules, varying in size from a pinhead to a pea, in various parts of the body, especially over the external occipital protuberance, the breasts and along the spine. These nodules may show ecchymosis at some time during their presence; their duration is from two weeks to several months. Another common symptom elicited in the histories of these individuals is stiffness and soreness of the cervical muscles (sternocleidomastoids) even without a sore throat.

The author calls attention to the very large number of tonsillar infections seen at the present time, which are probably due to the activation of latent infections by the recent influenza epidemics.

Because of the emphasis recently placed upon teeth, as a source of infection, it is not uncommon to see patients who have their teeth rayed and extracted, and other visible foci of infections examined without relief, show typical infected tonsils to which no attention

has been paid. It is Salaman's impression that there is some difference in the manifestations of infection due to dental and those due to tonsillar infection. He believes that the former produces trouble in one or more foci in the body such as joints, etc., without making the patient feel bad as a whole, while in the latter it is nearly always found that in addition to the joint pains, headaches, etc., the patients feel bad, are constantly tired and irritable, and have a number of minor complaints which are very suggestive.

M. KESCHNER.

FRIEDENWALD, J. AND MORRISON, T. H.: **Some Observations on the Sippy Treatment of Peptic Ulcer.** *Southern Medical Journal*, May, 1920, xiii, p. 318.

Sippy's treatment of peptic ulcers, according to the authors, consists in protecting the ulcer from acid corrosion until it is healed. This is accomplished by maintaining a neutralization of the free HCl during the entire period in which food or gastric secretion is in the stomach. If an excessive secretion is presented at night, this is removed by aspiration until the secretion has disappeared.

The neutralization is accomplished by frequent feedings and the administration of alkalis, given freely and at frequent intervals. Nourishment is given from the very beginning of the treatment; the preliminary starvation and administration of nutritive enemata are, according to Sippy, of little value. The patient is kept in bed for three or four weeks. Three ounces of a mixture of equal parts of milk and cream are given every hour from 7 a. m. to 7 p. m. After two or three days, soft eggs and well-cooked cereals are gradually added until in ten days the patient receives 3 ounces of the milk and cream mixture every hour, three or four boiled eggs and from 9 to 12 ounces of a cereal each day. Cream soups, vegetables purees, and other soft foods may now and then be substituted. One egg is given at a time and 3 ounces of a cereal at a single feeding, the cereal being measured after it is prepared. The cereal and eggs are given alternately and taken at the same time as the 3-ounce mixture of milk and cream.

The total bulk of each feeding does not exceed 6 ounces. After a longer or shorter period, according to the condition of the patient,

a large variety of soft and palatable foods may be used. The basis of the diet, however, should be milk and cream, eggs, cereals, vegetable purees and bread and butter. Alkalis are administered between the feedings from the very beginning of the treatment; powders consisting of heavy calcined magnesia (10 grains), with sodium bicarbonate (10 grains [0.650 gram]), are alternated with bismuth subcarbonate (10 grains [0.650 gram]) and sodium bicarbonate (30 grains [1.95 grams]). It is also advisable to give these powders every half hour after the last night feeding for a number of doses. According to Sippy, if a sufficient quantity of alkali is utilized on aspirating the stomach no free HCl will be found at any time during the period in which it contains food. If the acidity is not promptly controlled by giving the ordinary amount of alkali, the dose is gradually increased by adding 10 grains (0.650 gram) of sodium bicarbonate to each powder until the desired result is obtained.

The hourly feedings and alkali must be continued even when the patient is pursuing his regular occupation. If this cannot be carried out, he may be allowed a light breakfast of from 10 to 12 ounces consisting of cereal, eggs, bread and butter, or any soft food. A thermos bottle containing equal parts of cream and milk can be employed for conveniently supplying the hourly feedings. Three or four ounces can be taken hourly until noon, when a light luncheon of easily digestible meats can be taken. During the afternoon from 3 to 4 ounces of cream and milk should be taken every hour until the evening meal. The total bulk of food should not be sufficient to cause a greater increase in weight than necessary. If for any reason the hourly feedings cannot be maintained, the three usual meals should be substituted and the powders should be taken every hour for 3 doses; a light breakfast should be taken, and one hour after luncheon one powder should be taken; two powders should be taken at the end of the second and third hours, and one at the end of the fourth hour.

After ten or twelve weeks the feedings may be increased to two-hour intervals and the powders continued midway between the feedings. About twice the amount of food should be taken at each feeding; two powders should then be taken midway between the feedings.

After twenty or more weeks the patient may take three meals daily and a glass of equal parts of milk and cream between break-

fast and luncheon and between luncheon and dinner; two powders should be given between breakfast and luncheon and between luncheon and dinner; two powders should be given between breakfast and the milk and cream mixtures and two powders between the milk and cream and luncheon. Similarly two powders should be taken between the afternoon feedings and two powders, one and two hours after the evening meal, and again two powders three hours after the evening meal.

Sippy recommends the continuation of the five feedings daily with powder between as directed, beginning with the twentieth week of treatment, for a period of from four to five months longer. He believes that in this way no possible harm can result even after the ulcer has healed. Any untoward effect that might result from the continued use of the alkali can be overcome by interrupting its administration for a week at the end of each five to six weeks period.

Sippy recommends the same form of treatment for ulcer with pyloric obstruction as for ulcer without obstruction. He maintains that the obstruction is occasioned in about 1 out of 10 cases by a narrowing due to tissue infiltration produced by the ulcer. In these cases the treatment differs from the non-obstructive variety in that larger amounts of alkali are necessary, and that aspiration of the stomach is indicated every night, a half hour after taking the last powder. Sippy orders as much as 100 grains (6.50 grams) of the bicarbonate of soda every hour between the feedings and every half hour after the last feeding until 10 p. m., in order that the free acid may be overcome. Ordinarily from 10 to 30 grains added to each powder is sufficient to produce a favorable result. It may be necessary to aspirate again at twelve or 1 o'clock at night, and to repeat the aspiration at 4 or 5 a. m. As a rule, after the third or fourth night of this treatment, there is no longer an excessive secretion after midnight.

Sippy orders a seven-hour motor meal at the end of a week or two to ascertain whether the emptying capacity of the stomach has improved. He finds that in most cases of ulcer with obstruction, the degree of retention is greatly diminished after a week or two of treatment, and that many of these cases can be effectually cured by this plan without surgical interference.

Since Sippy's publication the authors have treated 452 cases of ulcer with this method; in but few instances were mortifications al-

lowed. The diagnosis was carefully checked up in every case, by clinical and *x*-ray examinations. The question of healing was determined not only by the absence of subjective signs, but also by the continued absence of occult blood in the feces and by negative *x*-ray findings.

They report 94 per cent of cures in the mild cases; 85 per cent in moderately severe cases; and 80 per cent in the severe cases. This is an average of 86 per cent of cures in all cases. These results, they conclude, are far superior to those treated by the Leube or Lenheartz method.

Ninety-four of their cases could be followed for a period of three years or longer. Of these 68, or 72 per cent, remained perfectly well, while 26, or 28 per cent, had relapses. These results, the authors claim, are quite as favorable as might be expected when one takes into consideration the many conditions favoring recurrences, such as errors in diet, focal infections, infectious diseases, etc., which are often beyond control when the patient no longer remains under medical supervision.

From their observations, the authors conclude that the Sippy method of treatment of gastric and duodenal ulcer is far superior to all other forms of medical treatment, and that in properly selected and carefully diagnosed cases, cures may be effected by this method when other forms of treatment have proven of no avail.

M. KESCHNER.

DUPUY: **The "Fictitious Meal Test" in Gastric Pathology** (*L'épreuve du repas fictif en pathologie gastrique*). *Paris medical*, Paris, April 3, 1920, No. 14, p. 286.

Pawlow showed that the gastric secretion has a double mechanism:

(1) The simple psychic excitations which produce an early and abundant secretion lasting about an hour—psychic secretion.

(2) This secretion is progressively substituted by a second secretion, provoked by the contact of the food with the stomach; this is the chemical secretion. It is provoked only by the proteins, the carbohydrates; the fats do not stimulate it at all.

Carnot proposed to use separately these two secretions to test the

chemical activity of the stomach. The article deals with the first secretion.

The author uses the following technic: The gastric tube is introduced into the empty stomach of the patient early in the morning. In case any retention is found, the stomach is emptied thoroughly. Then the patient is given a meal, consisting of a piece of steak, some buttered toast, and a glass of water. He is told to chew the food thoroughly without swallowing a bit. He spits out food-stuffs and saliva into a vessel and from time to time washes out his mouth with water. This food should be chewed for at least ten minutes. Then the patient rests for ten minutes. While he is resting he is told not to make any attempt to swallow, even saliva. After the rest period the gastric sound is used anew. Thirty to ninety c. c. of a clear gastric juice, which the author calls "appetite juice", are obtained. This juice is acid, containing a great amount of free hydrochloric acid.

NORMAL "APPETITE JUICE".—The appetite juice appears from thirty to forty seconds after the fictitious meal has been started, reaching its maximum during the last five minutes of the chewing process; it diminishes after the first ten minutes of rest, disappearing half an hour after the fictitious meal has been finished. It is a clear liquid with a slight yellow tinge.

Its odor is acrid. If there is any bile or blood it can be easily seen. Its acidity follows a parallel curve to the secreting activity. This latter function and acidity vary even in the same individual, according to the amount of appetite, the secreting value of his gastric mucosa, his previous diet, his psychic condition or any other cause that may modify the physiological equilibrium of his stomach.

The amount of juice secreted during the fictitious meal varies from 60 to 90 c. c. The amount of free HCl oscillates normally between 1.64 and 1.80; the total acidity oscillates also between 1.80 and 1.96.

The amount of pepsin was determined by Mehl's method, modified by Carnot. The figures obtained were as follows: Egg-albumen 7, and meat albumin 5. The "appetite" juice is very rich in lab-ferment.

It is interesting to note that the gastric contractions become suddenly more frequent, more active and shorter from the beginning of the fictitious meal; this proves that the taste excretions possess a

SECTION ON LABORATORY AND RESEARCH

DUVAL, C. W., AND HARRIS, W. H.: **The Antigenic Property of the Pfeiffer Bacillus as Related to its Value in the Prophylaxis of Epidemic Influenza.** *Journal of Immunology*, 1919, iv, 317.

Of 2608 individuals receiving 3 injections of a chloroform-killed vaccine of *Bacillus influenzae*, only 1.7 per cent afterward contracted influenza; 346 individuals received 2 injections of the vaccine and of these 8 per cent afterward developed influenza; of 118 individuals who received only 1 injection, 24 per cent were afterward infected.

Eight hundred and sixty-six individuals, whose occupation and environment were identical with those of the vaccinated individuals, refused the injections. Of these 41.6 per cent became infected.

The first injections caused a severe constitutional reaction in 30 per cent of the individuals and a mild reaction in 60 per cent.

The authors look upon these results as indicating "the specificity of the Pfeiffer bacillus."

A. F. COCA.

TALBERT, G. A.: **Effect of Work and Heat on the Hydrogen Concentration of the Sweat.** *American Journal of Physiology*, 1919, 1, 433.

The studies were made under two conditions: upon sweat induced by temperature increase, and upon sweat induced by physical exercise. The author finds that sweat caused either by heat or by work is acid, probably always so in perfect health. This acidity in continued secretion does not remain entirely constant. The variations averaged a p. H. (concentration of hydrogen ions) 5.22 for

heat sweat and p. H. 6.63 for work sweat; i. e. the heat sweat was always more acid than the work sweat. The maximum acidity figures for heat was 5.1 and for work 5.8 and the minimum for heat was 7.2 and for work 7.5. The author does not attempt an explanation of these differences.

W. H. EDDY.

KRAMER, B.: **Direct Quantitative Determination of Potassium and Sodium in Small Quantities of Blood.** *Journal of Biological Chemistry*, Feb., 1920, xli, 263.

The methods described in this paper were devised for the study of changes in sodium and potassium concentration in the blood of children, and this paper concerns itself with a description of the methods. By using the indirect sodium method described, sodium and potassium may be determined on 3 c. c. serum with an error not exceeding 5 per cent. The potassium content of normal human serum was found to vary between 16 and 22 mgms. per 100 c. c. serum; the sodium content of normal children and adults was found to vary between 280 and 310 mgms. per 100 c. c. serum.

W. H. EDDY.

MYERS, V. C.: **Chemical Changes in the Blood in Disease. I. Non-protein and Urea Nitrogen.** *The Journal of Laboratory and Clinical Medicine*, v, April, 1920, No. 7, p. 418.

The nonprotein nitrogen normally constitutes only about 1 per cent of the total nitrogen of the blood, nevertheless greater interest is attached to bodies which form the nonprotein nitrogen than to the ones which form the protein nitrogen. This is due to the fact that the nonprotein nitrogen gives an insight into some of the processes of anabolism and catabolism. The food nitrogen is carried to the various tissues by the blood and the waste nitrogen is carried to the kidneys, directly or indirectly by the same medium. After a meal containing protein, there is a temporary elevation in the nonprotein and amino nitrogen of the blood. In diseases of the kidney there may be at first only a slight rise of uric acid or urea, although in

the terminal stages of the disease there is generally a very marked elevation in all forms of nonprotein nitrogen. The normal range of the various nonprotein nitrogen components is given below. Data are also included indicating the deviations which may occur in gout, interstitial and parenchymatous nephritis, and eclampsia.

NONPROTEIN NITROGENOUS CONSTITUENTS
Mg. to 100 c. c. of Blood

<i>Constituent</i>	<i>Normal</i>	<i>Gout</i>	<i>Early Interstitial Nephritis</i>	<i>Terminal Interstitial Nephritis</i>	<i>Paren- chymatous Nephritis</i>	<i>Eclamp- sia</i>
Nonprotein N	25-30		30-50	to 350		
Urea N	12-15		12-30	300	30-60	10-25
Uric acid	2-3	4-10	3-10	25		
Creatinin	1-2		2-4	35		
Creatin	3-7			30		
Amino acid N	6-8			30	12	4-8
Ammonia N	0.1			1		

Urea and creatinin stand in marked contrast to each other, since the former is largely exogenous in origin, while the latter is almost entirely of endogenous formation. Uric acid stands in somewhat an intermediate position, being about half endogenous and half exogenous under ordinary conditions of diet.

Regarding the formation of these compounds, the following brief statement can be made. Urea is formed largely in the liver from the ammonia resulting from the deaminization of amino acids set free in digestion, but not of immediate use to the animal organism. Uric acid originates as a result of the enzymatic transformation of the amino- and oxy-purines, in which various glands of the body participate. Creatinin would appear to be formed in the muscle tissue from creatin.

In the urine, upon the ordinary mixed diet, the approximate distribution of these compounds is 85 per cent urea N, 1.5 per cent uric acid N, 5 per cent creatinin N, 4 per cent ammonia N, and 4.5 per cent undetermined N.

The kidney removes the creatinin from the blood with ease, urea not quite as easily, and uric acid with difficulty, so we would expect an increase in uric acid first, and creatinin last, in kidney disease.

Clinical Significance of Blood Urea.—The conditions in which nitrogen retention may occur are quite numerous. Marked urea retention may occur not only in the latter stages of chronic interstitial nephritis, but also in such conditions as bichlorid poisoning and double polycystic kidney, and in some cases of acute nephritis. In parenchymatous nephritis the findings are comparatively low. Relatively high figures are frequently found in malignancy, pneumonia, intestinal obstruction, lead poisoning, and sometimes in syphilis and cardiac conditions. In uncomplicated cases of prostatic obstruction the findings do not appear to be much above 20 mg. urea N. Advanced cases of diabetes frequently show definitely high figures, due in some cases to the high protein diet, in others to a complicating nephritis. In cases of gout not complicated with nephritis, high uric acid may be present with normal urea. In eclampsia the blood urea is only slightly elevated, if any.

Since creatinin is endogenous it is of more prognostic value than urea which is largely exogenous, and more subject to variations.

In conditions showing nitrogen retention, there are two lines of attack: (1) to increase the output of the kidneys, and (2) to decrease the nitrogen intake, while still maintaining the caloric and other needs of the body. A reduction in protein intake will lower the urea nitrogen, even in very severe cases of chronic interstitial nephritis, but the creatinin cannot be influenced appreciably.

For most chemical analyses, blood can be prevented from clotting by the addition of potassium oxalate, which can be added in the crystalline form or in from 2 to 4 drops of a 20 per cent solution. The blood is shaken well as soon as it is placed in the bottle. The specimen should be analyzed the same day it is taken. If kept cool, specimens may be kept twenty-four hours, but if the temperature is not constantly cool, the accuracy diminishes with the length of time, because such bloods show low blood sugars.

C. M. ANDERSON.

GUBERLET, J. E.: *On the Life-history of the Chicken Cestode, Hymenolepis carioca.* *The Journal of Parasitology*, 1919, vi, 35.

Hymenolepis is a common parasite among chickens during the late summer and early fall, at a time when the stable fly, *Stomoxys*,

is very abundant, sluggish and easily caught. Experiments in feeding infected flies to chicks under control conditions resulted in the infection of the chickens, making it evident that the stable fly may be the intermediate host in the life-history of the cestode and the means of the infection of poultry yards with the parasite.

L. H. GREGORY.

SANDIFORD, I.: **The Effect of the Subcutaneous Injection of Adrenalin Chlorid on the Heat Production, Blood-pressure, and Pulse-rate in Man.** *American Journal of Physiology*, 1920, li, 407.

Previous studies which are cited in the article have yielded conflicting testimony as to whether respiratory quotient is increased or not and whether the oxygen consumption or calorific output is increased, decreased or remains normal following the injection of adrenalin chlorid. The present article reports the results of forty-six experiments in which the effect of a subcutaneous injection of adrenalin chlorid upon the metabolic rate, pulse-rate, and blood-pressure of patients suffering from various disorders of the ductless glands was observed. A supplementary series of twenty-seven experiments are also reported in which the effect of the adrenalin injection on pulse-rate and blood-pressure is noted.

They find that there is an invariable increase in the metabolic rate after giving 0.5 c. c. of a 0.1 per cent solution of adrenalin chlorid. This increase is usually accompanied by an increase in the ventilation rate, respiration rate, number of heart beats per minute, volume of each beat, greater utilization of the blood-carrying power and peripheral dilatation with an increased systolic and decreased diastolic blood-pressure. They believe that the increased heat production may possibly be due to an excess of carbohydrate metabolites following the injection of the adrenalin. They also suggest that in addition there may be a direct stimulation of cellular combustion.

They find no relationship between the intensity of the adrenalin reaction and the degree of hyperthyroidism or hypothyroidism and fail to find these reactions of any diagnostic value in such conditions as have been suggested by Goetsch.

W. H. EDDY.

YOSHIDA, S.: On the Migrating Course of Ascarid Larvæ in the Body of the Host. *The Journal of Parasitology*, 1919, vi, 19.

Ascarid larvæ need to gain entrance to lung tissue for their full development. When larvæ are injected into the pleural cavity, they penetrate the lungs directly. When they are injected into the abdominal cavity, they enter the liver or they penetrate the diaphragm, enter the pleural cavity, and ultimately reach the lungs.

Examination of guinea pigs fed with *Ascaris* eggs showed that young larvæ, hatched in the intestine, have the power to penetrate the intestinal wall and enter the body cavity. From there they either bore through the diaphragm, and thus gain entrance to the lungs as in the inoculation experiments, or they penetrate the pancreas, spleen, kidneys, or liver. Possibly some, in penetrating the liver, may enter the hepatic vein and be carried to the heart and through the pulmonary artery gain entrance to the lungs. This is only an additional or accidental course of migration and not the chief course as was formerly believed, as no larvæ were identified in any blood-vessel, all being in other tissues when not in the liver or lungs.

L. H. GREGORY.

RIEUX, J.: Cytologic Evidence of the Regeneration and the Degeneration of the Blood. *Archives des maladies du coeur*, 1920, xiii, No. 6, p. 254.

In the genealogy of blood-cells, three phases of cellular development occur:

(1) A process of specific differentiation. This is fundamental. The primary embryonal mesenchymatous cells out of which the blood is developed are totally undifferentiated. By differentiation, the mother-cell gives rise to three main forms of blood-cells:

(a) Erythroblast which is the head of the hemoglobin series.

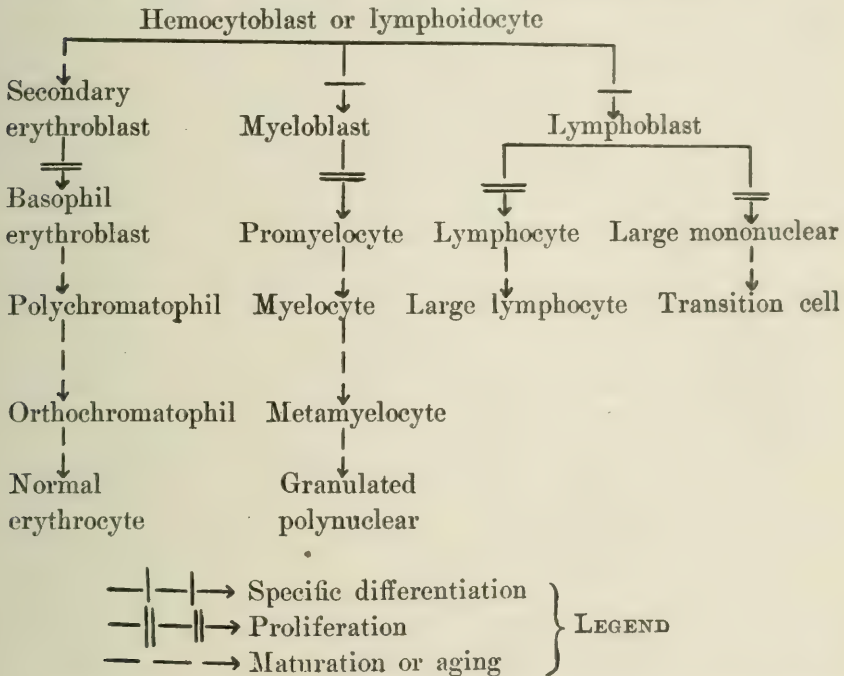
(b) Myeloblast or leukoblast which heads the myeloid series.

(c) Lymphoblast which gives rise to the lymphoid series.

(2) A process of proliferation or multiplication by karyokinesis.

(3) A process of maturation and of aging by ontogenesis which is common to all blood-cells and is the natural consequence of their fundamental quality as they are mobile and migratory cells.

The nucleus and the protoplasm both partake of these processes. As the nucleus is spherical in the young cells, with a tendency towards polymorphism as it grows older, it may show pyknotic degeneration and expulsion as in the red blood-cells. The protoplasm which is very fine in the young cells becomes coarser and takes on acid-staining properties as it grows older. These facts can conveniently be schematized in the following genealogical tree:



Thus, then, the differentiation of these primary cells once established and their proliferation observed, the daughter-cells present cytologic characteristics, fixed and specific, by which we can tell the type and age of the blood-cells.

RED BLOOD-CELLS

SIGNS OF REGENERATION.—*Nuclear Signs.*—The presence of a nucleus in red blood-cells is definite evidence of a regenerative effort on the part of the hematopoietic organs. The Jolly bodies and the rings of Cabot in the red blood-cells are remnants of this nucleus. The nucleus shows itself as a normoblast, microblast and megaloblast. The normoblast occurs in the severe anemias, in various in-

fections, and in cancer of the stomach and shows an attempt to normal regeneration. Megaloblast shows a karyokinetic process in the nucleus with a large amount of surrounding protoplasm and occurs in grave anemia, the so-called dysplastic anemia, especially pernicious anemia.

The Jolly bodies are the remains of the nuclear chromatin. They are round granules of the size of micrococcus, single or multiple, peripheric, situated in the megalocytes. They indicate a dysplastic or normal regeneration and are commonly associated with megalocytosis.

The ring bodies of Cabot, discovered in 1905, are found as rings inside of the red blood-cells; they are frequently central, spherical, or irregular and are usually single. The cell is oxyphil or polychromatophil and it is an important sign of pernicious anemia.

The classical opinion is that these bodies represent the persistence in the cell stroma of the nuclear membrane and show regeneration like the other nuclear remnants.

Protoplasmic Signs.—The protoplasm in the earlier red blood-cells is basophil and, occurring in the circulation, it is evidence of regeneration. Polychromatophilia of the red blood-cells is evidence of regeneration in so far as it indicates a basophil tendency.

Basophil granulations in the protoplasm were discovered by Ehrlich and Askanazy in 1883. They are found in severe anemias, but especially in lead poisoning. They do not show reaction of the nuclear chromatin. It is an atypical regenerative process for the embryo. The vital granulations are also basic in reaction but are found in the fresh specimen of blood inside of the red cells. They are placed peripherally and occur in conditions in which hemolysis occurs.

Two other features of uncertain significance occur in the red blood-cells. They are azurophil polychromasia and azurophil granulations. They are symptoms of grave anemia and signs of regeneration.

Signs of Degeneration.—These are indicated by certain changes in the protoplasm.

- (1) Anisocytosis signifies an inequality in the size of red blood-cells. This occurs in the severe anemia and is an indication, not of regeneration as Ehrlich believed, but of degeneration, as it is accompanied by many degenerative changes.

- (2) Poikilocytosis is a variation in form of the red blood-cells and occurs in severe anemias.
- (3) Hyperchromemia, or a variation in the amount of color in the red blood-cells, is observed normally in the embryonal cell and is also a sign of pernicious anemia.
- (4) The included bodies of Ehrlich, or the inclusions of Heinz, are closely related to the above-mentioned changes. They are found in experimental anemia produced by methemoglobin and toluyldiamin. They are situated in the cytoplasm of a red blood-cell and signify regressive changes.

WHITE BLOOD-CELLS

Signs of Regeneration.—The principal cytologic signs of regeneration of the white blood-cells are:

- (1) The presence of myelocytes.
- (2) The irritation cell of Turck.

The myelocytes are the young form of granular polynuclear cells. They are derived from promyelocytes and from myeloblasts. They occur in two conditions: In the circulating blood; and in the myeloid centers during blood crises. This reaction, or myelemia, occurs in the course of the crisis of infectious diseases, especially small pox, pneumonia, scarlatina, malaria, etc.

As part of this myelocytic reaction, one must consider the deviation of the formula of Arneth toward the left. According to Arneth, the polynuclear neutrophils may be classified according to the number of lobes in the nuclei. Normally 6 per cent contain one nucleus, 34 per cent contain two, 41 per cent contain three, 17 per cent contain four, and 3 per cent contain five lobes in the nucleus.

When a myelocytic reaction takes place the first and second types of Arneth increase. This is called a deviation toward the left and is an indication of myelocytosis.

The irritation cell of Turck is analogous to the plasma-cell of the tissues and is called plasmacyte. It is of variable size, generally ovoid with an eccentric nucleus, strongly basophil, non-granular protoplasm. It indicates a plasmacytic or myelocytic reaction and occurs in infectious diseases, particularly scarlet fever and small-pox.

M. H. KAHN.

COOK, M. W.: The Relation of the Rate of Absorption of Antigen to the Production of Immunity. *The Journal of Immunology*, Jan., 1920, v, No. 1, p. 39.

Studies of the rate of antigen absorption in sensitized and immunized animals, as contrasted with the rate of absorption in normal animals, have shown that previous treatment with an antigen confers upon an animal an increased power of absorption for that antigen. This fact was established with regard to sensitized rabbits and guinea pigs by Doerr and Pick, Friedberger and Loura, Römer and Viereck. Smith and Cook confirmed the work of Doerr and Pick and further demonstrated that absorption of antigen in immunized animals proceeds much more rapidly than in sensitized or normal animals.

After extensive animal experimentation and with suitable control animals, the author was able to demonstrate that the production of agglutins is noticeably influenced by the use of electrolytes during immunization. Animals receiving sodium citrate showed throughout a much higher titer than the controls; while animals receiving calcium chlorid were lower in titer than the controls. Moreover, agglutins, opsonins, and precipitins followed parallel courses. The results of this experiment would indicate that, while direct evidence cannot be brought that in this case the rate of absorption of the antigen has a direct influence upon the degree of immunity produced, it is nevertheless evident that the use of those agents, which cause such marked changes in the rate of absorption of egg albumen, is followed by changes in antibody production to the typhoid bacillus which are exactly similar to the changes effected in the production of precipitins for egg albumen.

While the influence of electrolytes upon the reactivity of an organism to an antigen is of considerable interest, the fact which is of chief importance for the present discussion is that a rapid rate of absorption of antigen was followed by an increased production of antibody. The reverse was also true—a much-retarded rate of absorption of antigen was accompanied by a marked decrease in the production of antibody. These results, when taken into consideration with the statement made previously, namely, that the condition of immunity is accompanied by increased powers of absorption for the specific antigen, may be of significance in throwing some light upon

the mechanism of immunity production. Certainly support would seem to be given to the idea that the condition of permeability of the cell, with respect to the absorptive powers for the introduced antigen, is a factor of considerable importance in the production of immunity.

W. LINTZ.

THJÖTTA, T.: On the So-called Neisser-Wechsberg Inhibiting Phenomenon in Bactericidal Immune Sera. *The Journal of Immunology*, Jan., 1920, v, No. 1, p. 1.

The Neisser-Wechsberg phenomenon consists in the observation that, whereas small or medium doses of bactericidal sera exhibited the bactericidal function with the homologous strain, the larger doses were without effect. Thus an inactivated immune serum against *Vibrio metschnikovii*, with added complement, showed bactericidal action in doses of from 0.05 to 0.0025 c. c., but in larger doses it had no such effect. Likewise, Neisser and Wechsberg showed that the dose of complement-bearing serum, which was sufficient to activate a certain dose of an inactivated serum was not capable of doing so when larger doses of immune serum were added.

The explanation of this paradoxical serum function was sought by the authors in the great richness of the immune serum in bactericidal amboceptors. These antibodies, which in the immune serum must be present in far greater quantities than the complement in the activating serum, were supposed to unite with the complement and form thereby a lysin that dissolves the bacillus after becoming attached to it; but on account of the predominance in the numbers of the amboceptors, there being insufficient complement to satisfy all of the amboceptors, some of the latter were assumed to remain as unaltered amboceptors, free of complement, and thus devoid of the bactericidal function.

When, under these conditions, fixation between the serum bodies and the bacilli takes place, if we assume that the bacilli have no greater tendency to attach themselves to the lysin than to the free amboceptor, there is a possibility that some of the bacilli will be combined with the lysin and will be dissolved, while others will unite with the free amboceptors and will not be affected. The latter bacilli

will survive, and the test will not show bactericidal function. This result would be the more likely under the assumption that effective lysin has a lesser avidity for the bacilli than the free amboceptor. If this supposition be true, the greater number of bacilli will be attached to the ineffective, free amboceptor, while the effective lysins will remain unused, and these will have no opportunity of bringing about the bactericidal effect. On the other hand, when the amount of amboceptors is small, as in a diluted serum, all of the amboceptors will be supplied with complement. Consequently there will be only effective lysin in the test, and the bactericidal effect will occur as a consequence.

Thus, according to Neisser and Wechsberg, the surplus of amboceptors in an immune serum brings about the inhibition of the bactericidal action, because this surplus makes the effective utilization of complement impossible.

After discussing the various theories brought forward to explain this phenomenon, and after performing numerous immunologic experiments *in vivo* as well as *in vitro*, the author comes to the conclusion that the inhibiting phenomenon of Neisser and Wechsberg is of a specific nature. It is to be found in active as well as in inactive sera; it develops during the immunization and can be found at very high degree in dysentery immune sera. In active sera from immunized animals, examined without the addition of foreign complement, the phenomenon presents itself as a complete abolition of the normal bactericidal action. The inhibition is due to antibodies that arise during the immunization or during the natural disease. These antibodies are not identical with the agglutins, the bacteriolysins or the precipitins. They must be considered as specific antibodies, which combine with dissolved antigen to form molecular complexes that have a marked tendency to absorb complement and to withdraw it from the bactericidal antibodies. The titer of inhibition is directly proportional to the employed dose of complement. With a small dose of the latter, smaller doses of the inhibiting bodies can be demonstrated than with a larger dose of complement. The inhibiting antibodies do not affect the bacteria themselves, nor can they be removed from the serum by absorption with an emulsion of the homologous bacilli. They can be demonstrated in sera that lack any bactericidal action.

W. LINTZ.

PEARCE, L., AND BROWN, H.: Chemotherapy of Trypanosome and Spirochete Infections. Biological Series. II. The Therapeutic Action of N-phenylglycinamid-p-arsonic Acid in Experimental Trypanosomiasis of Mice, Rats and Guinea pigs. III. The Therapeutic Action of N-phenylglycinamid-p-arsonic Acid in Experimental Trypanosomiasis of Rabbits. *The Journal of Experimental Medicine*, Nov. 1, 1919, xxx, No. 5, pp. 437, 455.

The therapeutic efforts of this drug were studied upon mice, rats, guinea pigs and rabbits, striking results being obtained. Trypanosomiasis, as it occurs in mice and rats, is chiefly characterized by the constant and progressively increasing number of trypanosomes in the peripheral blood stream, by the usual lack of clinical manifestations, and by the relatively early death of the infected animal. On the other hand, this infection in the larger animals, especially in the rabbit, is preëminently a tissue infection and is characterized by a series of clinical manifestations, lasting for weeks or months.

The authors studied the therapeutic effects, first, upon rats and mice, in which case the drug, to be effective, must be biologically available within a very short time after its administration and must have sufficient speed and duration of action to halt and eventually overcome a rapidly increasing blood infection comparable, in part, to a bacteriemia, which, if not checked, will cause death in a few days or even hours; second, upon rabbits. In this case the drug must possess, in addition to trypanocidal action, the power of penetrating diseased tissue, and must remain biologically active in the animal host for a comparatively long time.

The authors conclude that the average curative range of A 63 against a 24-hour infection of rats and mice is from 0.2 to 0.3 gram (3.5 to 5 minims) per kilo body weight. Its trypanocidal activity is rapid, the peripheral blood being cleared of organisms in twenty-four hours after the administration of the drug. Intraperitoneal, intravenous, and subcutaneous routes of administration, in the case of mice, were found equally efficacious as regards the speed of action and curative range. No organic or functional injury followed therapeutic administration, but, on the contrary, the general physical condition showed an immediate, continued, and marked improvement. Five different species of trypanosomes which are uniformly fatal were employed on rabbits. In the usual acute, actively pro-

gressing infection, of from one to two weeks' duration, produced by the *Trypanosoma brucei*, the drug had a curative range of from 0.2 to 0.35 gram (3 to 5 grains) per kilo body weight, when administered intravenously in single doses. Of 29 rabbits treated, 25, or 86 per cent were permanently cured. No relapses were observed with doses above 0.3 gram (4.63 grains). The infection with *Trypanosoma gambiense* was controlled by a lower dose; a single application of 0.15 gram (2.3 grains) effected a cure in 1 of 3 cases so treated. Smaller doses produced rapid regression and affected a healing of the clinical lesions of the infected animals. Permanent cures were also obtained by intramuscular and subcutaneous administrations of single doses of from 0.2 to 0.5 gram (3 to 7.7 grains) of the drug per kilo body weight, or three repeated doses of 0.1 gram (1.5 grains) body weight per kilo given intramuscularly.

H. M. FEINBLATT.

MORT, F. W.: Normal and Morbid Conditions of the Testes from Birth to Old Age in One Hundred Asylum and Hospital Cases. *British Medical Journal*, Nov. 22, 1919, No. 3073, p. 655.

The cases consisted of all types of nervous and mental cases as well as general hospital cases, and the testes were those of patients varying in age from birth to 86 years. The normal development and growth from the earliest age to adult life were studied in patients who suddenly died by accident, and the normal staining reactions were noted. Active spermatogenesis was found in 12 cases of general paralysis of the insane, and evidence that they were capable of fertilizing. There was no arrest of spermatogenesis after pronounced masturbation for 25 years; none also in severe head injuries, advanced chronic pulmonary tuberculosis, dysentery, pneumonia, influenza, and typhoid. Arrest was noted at all ages of long-standing chronic disease before puberty, but senile arrest showed marked individual variation, active spermatogenesis having been observed in a demented man of 81 years. Arrest of spermatogenesis was noted in connection with bullet wounds of the spinal cord carcinoma of the stomach, suppurative pericarditis, continued alcoholic indulgence, and repeatedly in dementia precox.

L. C. JOHNSON.

- V. WERDT, F., AND KOPATSCHEK, F.: **The Growth of Dysentery Bacteria on Albumin-free Media** (Ueber das Verhalten der Ruhrbazillen in eiweisfreien Nahrboden). *Centralblatt fur Bakteriologie*, Feb., 1920, i, No. 84, p. 95.

All strains of *Bacillus dysenteriae*, when grown on a protein-free medium to which test sugars had been added, failed to ferment dextrose, mannite, maltose, lactose, or saccharose. Other members of the colon-typhoid group produced their typical sugar reactions. Addition of a little peptone to this protein-free sugar medium reestablished the usual sugar fermentations characteristic of the dysenteries. The authors conclude from this that the dysenteries do not form sugar splitting enzymes in the absence of protein.

The protein-free medium used consisted of: distilled water, 300 c. c.; secondary potassium phosphate, 0.6 gram; aspartic acid, 2.0 gram; tertiary sodium phosphate, 0.6 gram; litmus, and soda solution to neutrality.

A. H. EGGERTH.

- COCA, A. F.: **Hypersensitiveness: Anaphylaxis and Allergy.** *The Journal of Immunology*, July, 1920, v, No. 4, p. 363.

True hypersensitiveness is a condition of specific or particular reactivity, with characteristic symptoms, to the administration of or contact with any substance in a quantity which to most of the individuals of the same species is innocuous.

Anaphylaxis is an experimental, or induced, nonheritable, hypersensitiveness due to the presence of specific antibodies in certain tissues. The symptoms of anaphylaxis are caused by the meeting of these antibodies with the respective antigen in those tissues.

Allergy is a natural inherited condition of hypersensitiveness which affects only human beings and is not dependent in any way upon immunological antibodies.

It is well to bear in mind the instances in which the symptoms of drug allergy were absent at the first administration of the drug but appeared after a repeated administration.

It is evident that the mere absence of symptoms upon a first injection of serum is not sufficient to indicate that the symptoms oc-

curing upon subsequent injection are of anaphylactic origin; there was previous evidence, which is now confirmed by the more numerous observations of Fordyce and Levin, that this occurrence is a characteristic phenomenon of drug allergy—a condition obviously unrelated to anaphylaxis.

Even in the few cases in which the possibility of the operation of an anaphylactic mechanism could be considered, that is, those in which symptoms developed only upon a reinjection of serum, there appears to be no good ground for looking upon these as anything else than less usual forms of allergy.

Ramirez reports that a quantity of blood (600 c. c.) was transfused from an individual who was hypersensitive to horse dander, to an anemic patient who had previously exhibited no symptoms of allergy. Two weeks after the transfusion the recipient went for a carriage drive and was seized at once with an attack of asthma. The usual cutaneous test revealed in the patient a hypersensitiveness to horse dander. Unfortunately it is not known whether the cutaneous hypersensitiveness existed previous to the transfusion. This observation is unique in the records. If it should be found that under similar circumstances hypersensitiveness could be regularly or often transferred from one human individual to another, it would be necessary to revise the conception of allergy that is here presented. At present it seems proper to look upon the occurrence reported by Ramirez as an accidental coincidence. Some support is given to this view by the fact which appears in the paper that the same donor had supplied a large quantity of blood (800 c. c.) to another recipient who did not develop hypersensitiveness to horse dander.

The age of onset of the clinical manifestations of allergy is different in different individuals. It has been shown to depend upon hereditary influence. It seems more probable that the recipient observed by Ramirez had just reached the age of natural onset of the horse allergy when the transfusion was carried out than that the transfusion itself was the cause of the allergy.

In view of the facts given it seems necessary to conclude first, that if anaphylaxis does occur in man, it does so only very rarely, and second, that there is no positive evidence that anaphylaxis occurs at all in human beings.

W. LINTZ.

KREMERS, R. E., AND HALL, J. A.: **On the Identification of Citric Acid in the Tomato.** *The Journal of Biological Chemistry*, 1920, xli, 15.

Attention is called to the fact that in spite of a large amount of work on tomato chemistry, the work of Hansen a few years ago produced the first isolation of citric acid in crystalline form from tomato juice, and his analysis is the first elementary analysis of this tomato citric acid. The article presents the review of Reid's recent work on the subject and its application by the authors to the identification of tomato citric acid. The method is given in detail and the presence of the citric acid is shown by means of its triphenacyl ester.

W. H. EDDY.

OLMSTEAD, W. H.: **Availability of Carbohydrate in Certain Vegetables.** *Journal of Biological Chemistry*, 1920, xli, 45.

It is pointed out that because of the extensive use of certain vegetables of low carbohydrate content, such as spinach, cabbage, cauliflower and lettuce, in the diet of patients suffering from diabetes during the determination of their carbohydrate tolerance, it is desirable to know with accuracy the amount of sugar-forming substance these foods contain. Recorded analyses permit only doubtful calculation, since, first, much of the carbohydrate is "fiber" presumably not digested or absorbed by man, second, there is uncertainty as to the extent to which the starch is liberated from its protecting cell structures and, finally, since certain organic acids, which by hydrolysis and reduction methods are not determined as carbohydrate, may form sugar after absorption from the intestine. Furthermore, since most published analyses usually give carbohydrate as determined by difference, the combined errors fall on this constituent, and there is no assurance that they furnish the amount of carbohydrate available to the body when the materials are eaten.

Methods were therefore devised by the author to determine more directly the sugar-forming material available in these vegetables. Of the ordinary methods used the authors have applied especially the following:

(a) Preliminary hydrolysis of the starch by diastase to dex-

trins, maltose and glucose, followed by copper reduction and determination by polariscope or by acid hydrolysis for the conversion to glucose, which is then determined by reduction.

(b) Analyses by means of the phlorizinized animal.

The former indicates only reducing sugars preformed or formed by hydrolysis of starch and the latter, the total available sugar-forming substance, including that formed from protein and organic acids.

The results follow:

<i>Vegetable</i>	AVAILABLE CARBOHYDRATE OR GLUCOSE		
	<i>Taka- diastase</i>	<i>Phloridzin- ized dog</i>	<i>Atwater and Bryant</i>
Cabbage	4.4%	5.0%	4.5%
Cabbage thrice cooked	0.4%	0.5%	
Cauliflower	2.8%	3.4%	3.7%
Cauliflower thrice cooked	0.8%	0.8%	
Spinach		1.2%	2.3%
Lettuce	1.0%		2.2%

W. H. EDDY.

EXNER, H. V.: **Some Observations on the Functions of the Suprarenal Glands in White Rats.** *The Dublin Journal of Medical Science*, April, 1920, Series IV, No. 2, p. 79.

From a series of experiments performed on normal white rats and white rats which had successfully survived complete epinephrectomy, the author deduced the following conclusions:

(1) That the suprarenal glands have no function which affects blood-pressure during asphyxiation.

(2) The glycogenic function of the suprarenals is dependent upon or works in conjunction with some nervous control; this nervous control, when adequately stimulated, is still able to produce glycosuria independently, and in the absence of suprarenal tissue. Whether or not the converse is true is a matter for speculation, but whatever the glycogenic function of the suprarenal glands may be, it seems to be subordinate to and dependent upon the central nervous system.

G. A. DISTLER.

SECTION ON PEDIATRICS

MARFAN, A. B.: **Asthma in Infancy** (L'Asthme des Nourrissons).
La Presse medicale, July 17, 1920, xxviii, No. 49, pp. 481-3.

Asthma is often seen in infants, but is not commonly recognized, being mistaken for broncho-pneumonia and recurrent bronchitis. The first attack of asthma always appears before a patient is twenty years old. Of 222 cases observed in patients under twenty, the disease began during the first year of life in 25, from the first to the tenth year in 118, and from the tenth to twentieth year in 79.

In children, asthma is usually ushered in by a catarrh of the respiratory passages. It is ordinarily seen in those patients who are subject to chronic coryza and bronchitis. During an attack of a "cold", the child suddenly becomes dyspneic. Respiration is rapid. The *alae nasi* dilate with each breath. A loud whistling sound is heard, especially during expiration, frequently interrupted by coughing spells, and associated with distress, cyanosis of the lips and pallor.

Auscultation reveals the presence of sibilant and sonorous râles in both lungs, predominating during expiration. Inspiration is short. Fine and medium subcrepitant râles are often heard at the bases. Occasionally the breath sounds are bronchovesicular, and the condition may be mistaken for a bronchopneumonia, especially since the asthmatic attacks are usually accompanied by fever.

The attack lasts from one to two days, with periods of remission. Then the dyspnea, the fever, and the physical signs suddenly disappear. Fine râles may persist for a little while.

Prognosis is favorable. The more sudden the onset of the first attack, the better are the chances for cure. Asthma in childhood is independent of tuberculosis.

The use of potassium iodid, in small doses, for a long period of time, gives very good results in preventing the appearance of attacks. For the attack itself, adrenalinized serum (1 minim in 5 c. c.) is injected one to two times daily. For the dyspnea, Marfan uses a mixture of equal parts of syrup of codein and syrup of ether, in teaspoonful doses, 3 or 4 times daily.

S. KAHN.

McCulloch, H.: **Studies on the Effect of Diphtheria on the Heart.**
American Journal of Diseases of Children, August, 1920, xx, No. 2, p. 89.

McCulloch presents a detailed study of 7 of 19 cases showing effects of the toxins of diphtheria on the myocardium in a series of 80 cases of the disease. Of all the acute infections diphtheria is especially prone to attack the heart muscle. This usually occurs in two stages; first a destructive parenchymatous degeneration of certain cells; second a proliferation of interstitial tissue with round cell infiltration, an attempt to repair. The lesions may be diffuse or localized, and may occur in the walls of the ventricles or the auricles, or only in the conducting system. It may lead to a rapid fatal ending, or pass in to a chronic stage where heart muscle is replaced by inert tissue, thus decreasing the total cardiac muscle mass. The heart's reserve power is thus greatly impaired or entirely gone. The symptoms are those of acute cardiac failure, dyspnea, precordial pain, cough or pain referable to the liver, moderate fever. The common physical signs are, increase of cardiac dullness; very fast or very slow pulse; cardiac arrhythmia; weak cardiac sounds and impulse; second pulmonic accentuated; pulmonary and visceral congestion; moderate cyanosis and possibly light edema.

The author stresses and demonstrates the importance of electrocardiographic study in localizing the disturbances either in the heart muscle or in the intrinsic conducting system. Dependent upon the part of this conducting system that is affected, symptoms of partial or total heart-block, or of a delayed conduction from auricle to ventricle, may be present. Other variations on the electrocardiogram in case the heart muscle is affected are, paroxysmal tachycardia, auricular flutter, auricular fibrillation, premature contractions, or the

ventricular complex may be altered. The amplitude of the waves may be decreased, the duration of the Q-R-S group of waves prolonged, and often the T-wave becomes isoelectric, diphasic or inverted.

From the study it is further noted that sudden death, which is quite common in those cases in which the cardiac mechanism is badly affected, is due to disturbances in the heart, usually in the conducting system, or to changes in the respiratory center, and not to degeneration of the vagus or sympathetic systems. If degeneration of these nerves does occur, it is independent of the heart involvement. Heart failure seems prone to occur in those cases that received anti-toxin late, or in insufficient quantity, or that was injected improperly. It should be given intramuscularly or intravenously.

In 85 per cent no myocardial change could be recognized, although a lesion may remain latent until some future date, as at puberty, or during some supreme effort, when the whole mechanism may break.

T. B. GIVAN.

THOMPSON, A. R.: **Traumatic Stricture of the Urethra in Children and Young Subjects, with Some Remarks Concerning the Immediate Treatment of Ruptured Urethra.** *British Journal of Children's Diseases*, London, 1920, xvii, 70-78.

Thompson feels that there is no injury so common and of such general significance as that of rupture, partial or complete, of the male urethra in male subjects. Traumatic stricture usually follows rupture of the urethra and as a rule is found in the triangle ligament, the membranous portion of the urethra or in the spongy portion. A diagnosis of a rupture can be made by an extravasation of urine as shown by a swelling in the perineum, an abeyance of urination and in addition a history of a fall upon the perineum. The probability of a rupture should always be considered with such a history.

He considers the prognosis in a case of traumatic stricture to be more serious and graver than in one due to gonococcal infection on the grounds that a rupture of the urethra entails periurethral and extra-urethral damage with considerable bruising of the parts in and around the urethral tube.

The immediate treatment of a ruptured urethra should consist

of suprapubic opening of the bladder and drainage by this route and also the performance of a perineal section with the exposure of the urethra and the suturing of the urethral ends. As constant catheter life is not always possible nor desirable in all cases, he advises operation with the following principles to be remembered:

- (1) Conservation and preservation of an intact urethra.
- (2) Removal of as much fibrous tissue as is possible.
- (3) Deep burial of the sutured urethra in the surrounding tissues.

He includes three case reports.

M. B. GORDON.

BLACK-MILNE, J.: **Two Cases of Anomalies of Growth: Unilateral Macrosomia and Congenital Overgrowth of the Right Leg.** *British Journal of Children's Diseases*, London, 1920, xvii, 79-85.

Both cases appeared in boys of 18 years of age. In the first case there was an hypertrophy and increase in length, width and circumference of the entire right side, with frequent minor disturbances of growth on the left side. The author feels that the condition is probably due to some change which took place in either the germinal or embryonic period, the exact etiological factor being unknown.

In the second case, there was a difference of one and three-fourths inches in the length of the two legs. This latter condition is always congenital, and apparently not hereditary, the disproportion increasing with age.

M. B. GORDON.

SECTION ON
ROENTGENOLOGY AND ELECTRO-
THERAPEUTICS

A COLLECTED ABSTRACT OF THE LITERATURE ON
ROENTGENOLOGY FOR THE YEAR 1919

By I. SETH HIRSCH

ORGANS OF DIGESTION (GASTRO-INTESTINAL TRACT)

(*Continued from page 963, Vol. I*)

Stomach—continued

John T. Murphy (Mechanics of the Stomach After Gastro-Enterostomy. *American Journal of Roentgenology*, April, 1919, p. 148) made a series of observations upon 25 cases in which posterior gastro-enterostomy was performed for ulcer of the stomach or duodenum, with the purpose of finding out the following: (1) What becomes of the new opening in the stomach after gastro-enterostomy. (2) Does it functionate in the presence of a patulous pylorus? (3) Is it always necessary to occlude the pylorus after gastro-enterostomy is performed? (4) Is gastro-enterostomy a drainage operation? (5) Do such artificial occlusions remain permanently closed?

A pint to a quart of buttermilk, in which were mixed four ounces of mucilage of acacia and from two to four ounces of barium sulphate, was given to the patient, as he sat in the upright posture. Four hours were allowed as the normal time for the stomach to empty this meal. The length of time since the operation was as follows (the ages of the patient were from 25 to 60 years):

Less than six months	6
Over six months but less than 1 year	6
Under a year and a half but over one year	6
More than two years	3
More than four years	1
More than six years	1
Date unknown	2

In many of these cases no difference in the filling of the stomach was noted. In others the rapidity with which the food left the stomach prevented it from filling except in part. In several cases, the entire organ filled just as in the normal, including the pylorus, and then the opening began to functionate and allowed the food to pass rapidly into the small bowel. In these cases, even though the pylorus was patent, only a very small amount passed out in the normal way in the upright position. In a certain number of these cases the food left the stomach rapidly, until only a small amount remained along the greater curvature of the stomach, with a corresponding amount in a loop of the jejunum. This remained for some time, but in only one case did this stasis persist long enough for it to be of pathological significance. In this case, a posterior gastro-enterostomy, the anastomosis had been made parallel to and high up on the greater curvature. The pylorus was sutured and remained closed. The food ran out of the new opening very rapidly until its level was reached, then it emptied slowly, leaving a residue in 24 hours. This case had very severe symptoms, pain, feeling of heaviness, gas eructations and vomiting and the patient was very miserable generally. In only four of the cases of this series were the patients not uniformly well. In all but one of these four, the reason for the recurrence was found at the fluoroscopic examination. In one case the gastro-enterostomy was functioning perfectly, emptying the stomach in two and one-half hours, with nothing but the slightest delay in the jejunum to account for the symptoms. The stomach was spastic which suggested that possibly the ulcer had never healed. A positive Wassermann reaction with an amelioration of the symptoms following anti-syphilitic treatment established a diagnosis of gastric crisis. In one case, because of a complete recurrence of pain and distress eighteen months after the gastro-enterostomy, the patient applied for re-examination. An irregularity of the pylorus suggest-

ed carcinoma although the new opening was functioning well. Re-operation revealed a carcinoma of the pylorus engrafted upon the ulcer site. In one case there was a recurrence of pain after meals six months after the operation. Upon examination stasis was found to occur posterior to the stomach and, after careful study of the barium movement, an extra loop of jejunum was found to have been included in the operation, causing a stasis at this point with distension of the bowel which continued some time after the stomach was empty. The following conclusions are deduced:

(1) That patients having gastro-enterostomy operations properly performed are uniformly well.

(2) That a patent pylorus does not interfere with the function of a properly placed gastro-enterostomy opening.

(3) That the opening must be of sufficient size and must be placed at the lowest point and almost directly below the lesser curvature of the stomach.

(4) That openings so made remain open permanently.

(5) That it is not a necessity but a good surgical procedure to occlude the pylorus, thereby causing the stomach to empty, at least temporarily, by the gastro-enterostomy opening.

(6) That gastro-enterostomy is a drainage operation.

(7) That in no cases have we ever been able to demonstrate serious distention of the loop of a small bowel near the opening into the stomach.

(8) That regurgitation of food back into the stomach does not seem to make any difference in the results of the operation.

(9) That ulcer diet should be used after the operation.

(10) That liquid food, by preference cool liquids, leave the stomach with the least peristalsis.

(11) That all gastro-enterostomy patients should eat frequently and a less quantity of food at each meal.

D. C. Balfour (Polyposis of the Stomach. *Surg., Gynec. & Obst.*, xxviii, No. 5) reports a case of polyposis of the stomach in a male, thirty-four years of age. The history disclosed relevant fact as follows: In 1910 the patient began to have periods of unexplained loss of appetite; during the following five years this periodic anorexia was a great annoyance. The symptom which finally brought him to the clinic, pain with an empty stomach, first manifested itself

in 1915. For a short time after its onset the pain showed some periodicity, but during the greater part of the three years it has occurred daily. The pain was a cramp beginning in the right and in the left hypochondrium and radiating toward the midline of the epigastrium; it was not associated with burning or with the usual subjective symptoms of hyperacidity, although it occurred only when the stomach was empty. The stomach seemed to empty very rapidly and the period of freedom from cramps after the ingestion of food had become increasingly shorter. By frequent eating he had kept his distress at a minimum and his nutrition was practically normal. There had been no nausea or vomiting or evidence of gastric bleeding. The patient had been discharged from the army in 1917 on a diagnosis of pulmonary tuberculosis, and, after five weeks in a sanitarium, home treatment was maintained until June, 1918.

The physical examination did not disclose any abnormal findings. There were no evidences of pulmonary lesion either clinically or by x-ray and the Wassermann test was negative. The test meal showed an absence of free hydrochloric acid and the presence of a considerable quantity of epithelium. This achylia explained in a measure the symptoms of which the patient complained and, considered with the character of the gastric pain and the fact that it had been continuous over a period of almost three years, practically excluded gastric or duodenal ulcer. The x-ray examination showed that the entire pyloric end of the stomach had a diffuse mottled appearance, apparently well demarcated both at the pylorus, and at a line about four inches from the pylorus. The diagnosis of gastric polyposis was made.

At operation the stomach looked normal but on palpation a soft doughy thickening of its wall extending from the pylorus to a line about five inches above was immediately evident, and, although this did not give the sensation of an actual tumor, the lines of demarcation were quite definite and corresponded with those apparent in the roentgenograph. Resection was carried out along these lines; about two-fifths of the stomach was removed.

A section of the gastric wall containing a tumor, examined microscopically, showed the bulk of the tumor to be composed of a tremendously hypertrophied mucous membrane. No hyperplasia of glandular element was of a character to suggest malignancy.

F. W. White (Effect of Stimuli from the Lower Bowel on the

Rate of Emptying of the Stomach. *Amer. Jour. of the Med. Sciences*, Aug., 1918, pp. 184-189; abstracted *Journal of Electrotherapeutics and Radiology*) made a roentgen ray study of the effect of stimuli from the lower bowel on the following: the rate of the emptying of the stomach; the effect of mechanical filling and distention of the colon by enemata in men and cats; the effect of chemical irritation of the cecum in cats; the effect of diseases of the lower bowel in 120 cases of chronic colitis, tubercular ulceration and cancer of the colon, chronic and acute appendicitis, and adhesions of the lower ileum and colon.

The results all point the same way: (1) delay in the emptying of the stomach is the exception in lesions of the lower bowel; (2) a strong stimulus is needed from the lower bowel to slow the stomach, for it was found that the stomach emptied a barium meal within the normal time in some cases of ileal stasis of two or more days duration, and in most cases with good-sized twelve-hour residue in the ileum; the stomach also emptied within normal time when the colon was distended with a large enema, as well as in most cases of chronic appendicitis and chronic inflammations and tumors of the colon.

Clinical and experimental observation in lesions and irritation of the upper bowel (duodenum and jejunum) have shown that they often delay emptying of the stomach.

Experiments on animals showed that when the colon was irritated by injections into the cecum, variable results were obtained: intense irritation caused vomiting; less marked irritation caused either delay in emptying the stomach up to about twice the normal time or rapid emptying of the stomach and whole digestive tract; moderate or slight irritation had no effect. These experiments would suggest that different degrees of inflammation of the appendix may affect the stomach in a corresponding way.

Marked delay in the emptying of the stomach is far more often the result of actual lesions about the pylorus than of reflexes from the bowel. "Stomach symptoms" in intestinal cases are not, as a rule, the result of slow emptying of the stomach but are largely toxic, or are the result of referred pain or distress.

The Vermiform Appendix

That disease of the appendix may exist without local symptoms cannot be doubted. The roentgen ray examination demonstrates

distinct pathological changes in the appendix, and operation corroborates the abnormal findings, even when there has been no local symptoms referable to this organ. The roentgen ray examination also shows that there are numerous abnormal phenomena demonstrable in the stomach, duodenum and colon, which are associated with these abnormal appendical findings. It is reasonable then to suppose that these reflex phenomena in distant organs must have a clinical expression in varied digestive disturbances, which have been previously misinterpreted or misunderstood. This is why the roentgen examination of the appendix becomes important, in the determination of the cause of gastro-intestinal symptoms.

John T. Williams and Robert Slater (*Ann. of Surg.*, Nov., 1919) published an interesting study on the condition of the appendix in 500 laparotomies on patients presenting no symptoms of appendicitis. They found that about one-third of all women operated on for various pelvic conditions show undiagnosed lesions of the appendix. In some cases these lesions are the result of extension of an inflammatory process to the appendix from the pelvic organs, but at least one woman in every five shows an appendix lesion without symptoms and without discoverable cause (so far as the pelvic organs are concerned). These lesions are nearly all chronic in nature and consist of the following types: (a) Adhesions without change in the muscular or mucous coats; (b) chronic inflammatory changes in all the layers; (c) pericecal veils. The frequency of these lesions is of importance in its relation to two questions: First, Are such undiagnosed lesions of the appendix the undiscovered cause of reflex symptoms elsewhere? Second, Are the symptoms usually ascribed to chronic appendix disease in reality due to some other condition and are such changes as are found in the appendix of no clinical significance? The authors are inclined to this latter view, but do not feel justified in drawing a definite conclusion to that effect on the evidence they have.

E. L. Spriggs (*The Examination of the Vermiform Appendix by X-Rays. Archives of Radiology and Electrotherapy*, March, 1919, No. 224) presents an excellent and well-illustrated paper, which is based on the study of over 300 cases in which the appendix was demonstrated in whole or in part.

Method of Examination.—As a preliminary to the examination a cathartic, preferably castor oil is administered thirty-six hours before the opaque meal.

The meal administered for the examination of the appendix consists of three-quarters of a pint (425 c. c.) of buttermilk in which is suspended from 100 to 150 grains (7 to 10 grams) of barium sulphate.

The examination is then by two methods: first, fluoroscopy with palpation by means of the gloved hand or with the aid of a wooden spoon in order to observe the mobility; the presence and absence of active movements, or the location of sensitive pressure points (in order to visualize the ileum and cecum it is necessary to manipulate these structures in order to obtain a view of the whole appendix when possible), second, several plates are made roentgenographically of the ileocecal fossa in order to study the form, shape, position, and outline of the appendix. Roentgenographs are made in the horizontal position in the ventro-dorsal direction; sometimes a semilateral position is required.

When the cecum lies in the pelvis, the appendix can often be shown, but, generally speaking, its mobility cannot be tested. It is possible, however, in most cases, to move the cecum into the iliac fossa by the following procedure. The patient lies on the right side and takes a half dozen deep breaths, then turns semiprone on the right, still breathing fully; he then moves on to his back and the abdomen is stroked deeply from the symphysis pubis to the right iliac crest. Another means of moving the cecum out of the pelvis is to distend the rectum with air, the patient lying on the right side. (This method has been used, but it has generally been found unnecessary).

If the appendix lies behind the cecum it can often be shown by taking an oblique view, or by moving the cecum to one side.

It is an advantage if the ends of the ileum and of the appendix can be shown filled at the same time. Should there be an opaque material in the ileum, but not in the terminal part, it will often be moved on into the terminal part if a drink of hot water be given, provided there is no obstruction to prevent the hot water from leaving the pylorus. The patient should turn on to the right side.

When there is pain, tenderness, or inflammation, movements and manipulations must be made only with great care.

A 2 mm. aluminum screen is interposed for both screening and plate exposures. A Coolidge tube is used.

Normal Appendix.—The shadow of the normal appendix may

vary in width from one-quarter inch to a thread, or it may consist merely of a row of dots. The lumen may be seen to fill and empty several times especially in young people, and normally it should empty and fill at the same time as the cecum itself.

In those cases in which the appendix fills only in part or empties before it has completely filled, a succession of buttermilk meals at breakfast, lunch and tea time may fill it.

The appendix begins to fill soon after the material enters the cecum, that is from three to four hours after the meal has been taken, although in some instances the filling may not take place until after the cecum and ascending colon are filled. The filling may be quite slow or it may be complete in a few minutes.

The material entering the appendix may appear as a shadow of the same breadth as if forced by the pressure of the cecum and the material may be seen to pass along the lumen when the cecum is pressed. The tapering shadow of the contrast substance in the appendix and its rapid movement would indicate that the contraction of the appendix with constriction of the basal part near the cecum moves the contrast substance to the tip of the appendix by a sort of peristaltic action. Under pathological conditions a wave of contraction may be seen extending from the base of the appendix to the apex. In such instances the contrast shadow appears as a round head towards the tip tailed off towards the base where the wave of constriction is grasping it.

The width of the lumen varies considerably in different appendices in the same individual. Early in the study it may be relaxed and later on becomes markedly constricted. It bears no relationship to the size of the cecum and the ascending colon.

The best view of the appendix is usually obtained from twelve to fourteen hours after the meal and as a rule is visualized until the cecum is empty, surely not long after the ascending colon is empty. It may, however, empty when the cecum is still full.

The emptying of the appendix takes place by definite waves of contraction which pass from the tip to the base. Wave-like motions in the tip are probably due to a contraction of its wall or to the passage of material from the ileum to the cecum or from the cecum into the diseased appendix.

The Diseased Appendix.—In the diagnosis of chronic appendicitis they have found direct x-ray examination of the appendix of

great value, not only in cases in which suspicion had been cast upon that organ, but especially in the subjects of vague abdominal symptoms of unknown cause; in many such it has been possible either to demonstrate a normal appendix or to show that it was, or had been, the seat of disease.

It is sometimes possible to make a diagnosis of chronic appendicitis from *x-ray* findings in the ileocecal region other than direct observations of the appendix. Such findings as adhesions of parts, ileal stasis, insufficiency of the ileocecal valve, and spasticity of the colon, have been put forward as affording contributory evidence of appendicitis. Adhesions about the appendical region are, of course, suggestive of former inflammation. Ileal stasis has been said to be present if the terminal ileum is not empty nine hours after the opaque meal. Such a definition can apply only in case the stomach is empty in a normal time, for the ileum cannot discharge its contents promptly unless it receives them promptly from the stomach. This fact has sometimes been overlooked, and ileal stasis has even been depicted in the literature by a photograph in which opaque material can still be seen in the stomach. As a working definition, they speak of ileal stasis or delay if the terminal ileum contains opaque material more than four hours after the stomach is empty. It was present in 21 out of 35 cases operated upon; also in cases in which the appendix had been removed. But the examination of the appendix itself with the buttermilk meal gives more valuable information than can be derived from observations on surrounding parts made with those opaque meals which enter the appendix less often.

In the direct examination of the appendix the points to which attention must be paid are: (1) the filling or emptying of the appendix—delay or stasis; (2) shape—constriction and dilatation; (3) fecal concretions—vascuoles; (4) mobility; (5) hyperactivity—spasm; (6) tenderness; (7) position.

The Filling and Emptying; Delay or Stasis.—The appendix may not admit any barium, or not enough to cast a shadow, either because it already contains inopaque material or because it is obstructed or obliterated. Constriction near the base, or obliteration will, of course, account for some of the cases in which the appendix is not seen. But the authors do not think that it is justifiable, in the present state of their knowledge, to conclude that they regard with suspicion an appendix which does not fill, as it is unusual to fail to

demonstrate the appendix in a person thought to be normal, especially if the second examination be made with three small buttermilk and barium meals, as described above.

Most frequently in chronic appendicitis the appendix partly fills, and the passage of barium into the distal part is blocked, sometimes by obliteration or constriction or kinking, but generally by stagnant inopaque material which the appendix has been unable to expel owing to limitation of movement by inflammation or its results. Sometimes the barium mixes with this material, forming a fainter shadow.

In these cases there is delay in emptying so that instead of the appendix emptying at about the same time as the cecum it retains its contents twelve, twenty-four, or more hours longer. The writers have observed barium to remain for twenty-six days, and it has been known to remain for several weeks.

An appendix showing prolonged stasis is one in which fecal concretions would be likely to form. If the shadow is very fine and the appendix rigid there is probably a fibrous atrophy.

Shape; Constrictions and Dilatations.—Irregularity in the outline of the shadow is, next to uneven filling, the commonest sign of diseased appendix.

Fecal Concretions; Vacuoles.—Concretions of long standing become infiltrated with lime salts, and cast a shadow which may be seen independently of an opaque meal. Such a shadow may be confounded with calculi in the urinary tract. It is usually a symmetrical oval, which may help to distinguish it from the shadows of calcareous glands and phleboliths. The lumen proximal to an old concretion is often bent into a sharp hook; indeed, a hook-shaped end to the appendical shadows should suggest the possibility of a concretion.

More recent concretions, which cast no shadows of their own, may block entirely the passage of barium, in which case they cannot be recognized, though they may be suspected, in appendices of irregular outline, which fill only in part, and show a hook. In many cases the barium passes round a soft concretion, which then gives the appearance of a vacuole. There may be more than one of these abrupt or gradual widenings of the lumen, which are constant in different photographs, alternating with narrow places. In other words, the barium extends around the proximal part only of the concretion, giving a V- or cup-shaped shadow.

Mobility.—If the appendix cannot be moved about within the

limits of its attachments, adhesions are suspected; this, of course, is not true if the cecum and appendix lie in the pelvis. Adhesions of the appendix to other parts of the digestive tube can often be shown by manipulation, the adherent parts moving together. It is most often adherent to the iliac fossa, the ileum, the cecum, or in the pelvis. The appendix may fill with barium, even when it is bound down for the whole of its length, where inflammatory membranes cover the appendix and cecum, and constrict the ileum.

Sharp kinks must be noted carefully.

Hyperactivity; Spasm.—The normal filling and emptying movements of the appendix, which in the young are, like the mass movements of the colon, often vigorous and rapid, may be aggravated in older people by acute and subacute inflammation in those parts of the appendix in which gross changes have not taken place. In chronically inflamed appendices containing a fixed fecal mass offering resistance to free progress the writers have observed vigorous waves travelling from the cecum towards the tip, but not in the reverse direction, even when barium lay distal to the obstruction.

Such pathological hyperactivity differs from the normal activity in that it is often continuous for hours during the filling period; the authors have seen it continue from twenty-four hours to thirty-six hours.

Another characteristic appearance of the inflamed appendix is that of spasm. A particular part remains constricted for a considerable time, the blocks of opaque material being cut off abruptly; whereas, when they are being moved on by waves of contraction, they have tailed or rounded ends. Slight or varying dilatation of the lumen is nearly always present also. When concretions are present there is generally no spasm. A very thin small lesion may cause spasm and impair the rate of emptying.

Tenderness.—Tenderness or pain on direct pressure over the appendix shadow may be a valuable and unequivocal sign of inflammation. An enlarged part of an appendix is frequently, though by no means always, painful on direct pressure. But, taken alone, tenderness is of less uniform significance than might be expected. It is not safe to make a diagnosis of appendicitis from tenderness in the absence of the more important signs above mentioned. If direct though gentle pressure is made upon the base of the appendix, pain is often felt, usually at the spot pressed upon, but sometimes in the

left side of the abdomen. The temperament and general condition of the patient must never be forgotten in interpreting this sign.

In a case of serious gastric disorder the appendix lumen was large, and filled and emptied naturally, but the patient complained of severe pain when it was pressed upon gently. He was x-rayed again after a fortnight, the same sign being obtained several times in each series of observations. At the operation the stomach was found to be the seat of a growth, but the appendix was healthy.

In summarizing it is stated that the signs of present inflammation are, in addition to pain and other clinical symptoms, a tender point, and varying dilatation of the lumen from hyperactivity and spasm, whilst evidence of former disease, recent or remote, is given by concretions, abnormal outline, delay in filling or emptying, adhesions, severe kinks, and, in certain cases at least, by the absence of a shadow.

George A. Pfahler (*The Roentgen Rays in the Diagnosis of Appendicitis. American Journal of Roentgenology*, Feb., 1919, vi, No. 2, p. 78) believes that in the great majority of cases the roentgen rays are not necessary for the diagnosis of appendicitis, especially acute appendicitis. In chronic appendicitis, however, the symptoms are very often obscure and the clinical signs and other evidences of an inflamed appendix are indefinite or are complicated by lesions in other organs. In these obscure cases the roentgen rays will give the greatest assistance in making correct diagnosis.

Acute Appendicitis.—In acute appendicitis the roentgen rays are very rarely necessary to assist in the diagnosis, but at least two points of diagnostic value can be demonstrated in these cases.

(1) In that group of patients in which are symptoms of acute appendicitis due to an early pneumonia developing in the lower lobe of the right lung, the roentgen rays will be useful in demonstrating the lesion in the lung, thereby aiding in differentiating pneumonia from appendicitis.

(2) A valuable point in the diagnosis of acute appendicitis brought out by Case is obtained by filling the colon to demonstrate the relations of the area of acute tenderness, and thereby assisting in differentiating appendicitis from other affections of the organs in the right lower quadrant of the abdomen.

Chronic Appendicitis.—The chronic appendix gives much roentgenological evidence of value in diagnosis. In the majority of in-

stances the patients are referred because of obscure stomach symptoms, in which the diagnosis of gastric ulcer is suspected, but the evidence is insufficient for an operation. In other cases the gall-bladder or duodenum is under suspicion.

Technic.—In this general group of cases, therefore, it is the practice of the author to order for the patient a purgative, such as a bottle of citrate of magnesia at nine o'clock on the night preceding the examination. The patient then reports at nine o'clock the following morning without any breakfast, at which time a thorough study of the gall-bladder region is made; six or eight plates are used. The patient is then viewed fluoroscopically at which time any gross abnormalities in the chest are noticed; the abdomen is viewed in general, at which time occasionally a biliary calculus or a urinary calculus may be observed even before the opaque meal is given. At times even a urinary calculus will give rise to these obscure gastro-intestinal symptoms. The patient is then given a barium meal, consisting of approximately two ounces of barium in a pint of buttermilk or one of the prepared fermented milks. A careful study is then made of the stomach and duodenum, and if anything abnormal is found, the patient is again seen in three, four, or six hours, depending upon the conditions. If nothing abnormal is observed at the first visit by a careful fluoroscopic examination, the patient is seen again at the end of eight hours, after the opaque material has entered the cecum and ascending colon. At this time one can make some of the preliminary studies with reference to the terminal portion of the ileum, the cecum, and, occasionally, also, at this time the appendix will be visualized. In some cases this is the only occasion at which the appendix can be demonstrated. Generally at this eight-hour period the appendix is not filled. The patient is next seen twenty-four hours after the first visit. At this time, in practically all instances, the cecum and ascending colon are well filled and, in the great majority of instances, the appendix can be demonstrated. The patient is allowed to continue with regular meals, after the first barium meal, unless something is found in the stomach or duodenum. No purgative is allowed during the entire study. At the twenty-four hour examination, studies are made with reference to the cecal region and the entire colon. The patient is next seen at the end of forty-eight hours, when further observations are made with reference to the ileo-cecal region, and the filling effect throughout the

colon. The patient is then given a barium enema. This outlines the colon and further demonstrates its relation to other organs as well as its relation to the appendix. It also enables one to recognize any constriction or filling defect, and the patient does not have the objectionable drying up of hard barium masses, which sometimes are troublesome in passing from the rectum.

Localized Tenderness.—This is the most valuable sign obtained, and is elicited either by direct palpation under the screen by means of the gloved hand, or much better (which is the author's practice) by means of a wooden spoon-like instrument. When the appendix is visualized (that is, when the barium meal enters the appendix so that it can be distinctly seen), one can often localize the tenderness directly over the appendix. When the appendix is movable, not infrequently the localized tenderness moves with the appendix. This tenderness is persistent and is present throughout the various studies made. At times this tenderness is acute and sharply localized, and at others it is a more or less general and less acute tenderness. A vague tenderness is more likely when the appendix is retrocecal and when there is considerable soreness; but the tenderness is not sharply localized until one twists the patient in such a manner as to bring the pressure directly to bear upon the appendix, in which instance it is often quite acute. If no tenderness is present and if at the same time the cecum is freely movable, the author believes that one can say that no appendicitis exists. On the other hand, if there is localized tenderness over the cecum with fixation of the cecum and no visualization of the appendix, it very frequently means an obliteration of the appendix by inflammatory exudate which prevents the appendix from filling with the barium meal. Localized tenderness, with fixation of the cecum, and without filling defect, is, the author believes, strong evidence of appendicitis.

Demonstration of the Appendix.—The appendix can occasionally be demonstrated by the opaque enema, but in many more instances it is demonstrated by means of the opaque meal, particularly when the latter is administered with buttermilk.

The appendix can be demonstrated if one looks for it at the end of eight hours, at the end of twenty-four hours and at the end of forty-eight hours. It is not always visualized in a plate made of this region but if one palpates the cecum by means of the wooden spoon or distinator, and if the appendix has been filled with the barium, it can

practically always be demonstrated even if it is lying behind the cecum. To accomplish this, one should rotate the patient to the right or to the left sufficiently to bring the posterior surface of the cecum to view; the appendix can then be demonstrated if it is filled with opaque material. The author believes that no case is thoroughly studied unless this procedure is followed. Normally the appendix fills and empties when patent.

Fixation.—A chronically inflamed appendix is very likely to become more or less attached to the surrounding tissues. It may be attached only at its tip, in which case the greater portion of the appendix could be moved around freely, together with the cecum, and yet the tip of the appendix remains in a stationary position. On the other hand, the appendix may be fixed throughout, or it may be fixed at its base, and the tip of the appendix may be movable. However, absence of fixation or evidence of adhesions about the appendix must not be regarded as negative in the diagnosis of chronic appendicitis, for we all know that an appendix may be inflamed and yet be freely movable. In this instance, the localized tenderness again is of great value.

Position of the Appendix.—Normally the appendix is directed downward into the pelvis, but normally it is freely movable, and changes its position without external influence to a considerable extent during twenty-four or forty-eight hours. It not only changes its position but its shape, indicating that there is likely some vermicular or peristaltic movement associated with the appendix. One may find, therefore, a chronic appendix in a normal position in the pelvis, lying transverse or along the inner side of the ascending colon; it may be retrocecal or, as in one case of the writer, the appendix was wound around the pyloric end of the stomach. In a number of cases I have found it up in the gall-bladder region, in which instances the patients are generally sent for a gall-bladder examination rather than an appendical study. In general, when the appendix is directed upward or is retrocecal, it is more likely to indicate chronic appendicitis.

Kinking or Angulation of the Appendix.—The mere bending of the appendix has no significance, for the shape of the appendix will vary many times within twenty-four hours, but if there is a fixed angulation it is very commonly due to an adhesion at the point of fixation. This has distinct significance.

Constriction.—Constriction, dilatation, or irregularities in the lumen—these may consist of a bulbous portion, or the whole appendix may be much dilated, or one may have marked irregularity in the lumen. All of these are believed to have pathological significance.

Abnormal Retention.—If the appendix remains filled with barium after the cecum and ascending colon have become empty, or after the entire colon is emptied, the author believes that it has pathological significance.

Other Roentgenological Evidence of Pathology in the Right Lower Quadrant of the Abdomen.—(1) Enteroliths in the cecum.

(2) Adhesions of the cecum to the side of the rectum.

(3) Carcinoma of the cecum is associated with two of the most important roentgenological symptoms of chronic appendicitis, namely localized tenderness and fixation.

(4) Psoas abscess or iliac abscess, which ultimately points to the neighborhood of Poupart's ligament, may give rise to localized tenderness, with a great deal of pain and distress, and the consideration of chronic appendicitis is often forced upon us. In these cases an examination of the spinal column will help to clear the diagnosis, and generally the cecum and appendix are found to be freely movable unless there is associated chronic appendicitis. The two conditions may, of course, be present at the same time.

(5) Urinary calculus occurs. The writer has seen several patients operated upon for chronic appendicitis, when a subsequent roentgen examination demonstrated the presence of a ureteral calculus. Even renal calculus may give reflected pains in the right quadrant of the abdomen.

(To be continued)

SECTION ON NEUROLOGY AND PSYCHIATRY

FRENZEL, R.: **Neurotic Suffusion of the Skin** (Neurotische Suffusion du Haut). *Deutsche Zeitschrift für Nervenheilkunde*, 1920, Bd. 66, H. 5 and 6, p. 266.

A suffusion of the skin over the region of the first to third lumbar region occurred in a man fifty-six years old, who, when nineteen years of age, had been infected with syphilis. Since November, 1919 he had been short of breath, had had attacks of angina pectoris, and edema of his legs, especially the left one. When he came to the hospital on Feb. 2, 1920, his legs showed a slight degree of edema, his temperature was 36° C. (96.8° F.), his pulse 80, and slight dyspnea prevailed. Underneath the shoulder-blades there was a rattling sound, the heart was hypertrophied, and the left side of the liver was markedly enlarged. Blood examination was positive.

The diagnosis was of myocarditis luetica, and lues hepatica.

On February 23 and 25 novasurol was injected into the left gluteal region. On February 25 influenza set in, but this had cleared up very much by March 3.

On March 5 a band of greenish, bluish, reddish suffusion appeared in the region of the fifth lumbar, some two inches from the median line, and about one-half inch from the left crista iliaca and running parallel with it down to the side of the upper part of the thigh.

The points of injection were still visible beyond the area of suffusion. The discolored skin showed no blisters, and was not painful.

The author is of the opinion that herpes zoster could not be diagnosed, not even an atypical form, because no trauma had occurred, nor were there any blisters. Erysipelas was barred because the patient had no pain. Frenzel considers that the condition is a suffusion caused by a central lesion of the vaso-motor type.

KAHN, E.: Constitution, Hereditary Biology and Psychiatry (Konstitution, Erbologie und Psychiatrie). *Zeitschrift für die gesamte Neurologie und Psychiatrie*, 1920, O. Bd. 57, p. 280.

Kalin desires to show the possibilities of exact diagnosis on the basis of constitutional and environmental factors, widely discussed during the last years. He arrives at the conclusion that at the present time methods have not reached a state of completion to be too optimistic for the present.

Johannsen's definition of constitution in the hereditary biological sense is "the entity of morphological, functional and evolutionary characteristics, so far as they are inherited or inheritable, that is as far as they are anchored in the structure of the genotype."

Besides the constitutional qualities, those of the "constellation" as Kahn calls it, must enter into the judgment as to severity, cause or prognosis of a case. This "constellation" includes the relation of the organism to its surroundings and to the position held by the constitutional qualities to occurrences outside of the constitution, generally called environment.

Hoche's resigned and ironic remark that a turbid fluid is not classified by pouring it into another glass may well be applied to endeavors to consider the organism as a whole in order to come to a definite judgement as to what especial traits in the qualities inherited or acquired are at fault. It is very difficult to grasp the sum of all features instead of single ones. Lately syndromes have to a great extent been established, but do not cover the idea of constitution and "milieu" and vary so enormously that it seems doubtful, whether it will ever be possible to give a definite description of entities in a clinical sense, of any one sort of psychosis.

Kahn thinks that that which has been put forth by Kraepelin has a classic value, namely the great general division into melancholia which he calls depressive mania, and dementia precox.

In every case of disease, in every manifestation of an organism, constitution plays a prime rôle and everything arising from the environment must be encountered in one or another way by the constitution, as it has been inherited.

It is the first duty of a physician to look for characteristics of the constitution, and to judge in how far a disease is part of the constitution, and to consider in how far modifications have occurred and can occur by "milieu" influences.

In psychoses it is not possible to consider psychical and psychopathological phenomena alone, but somatic qualities must be considered as well. One cannot base a correct judgment merely upon speculative psychopathology. It may prove useful to an extent, as may experimental psychology, serology and anatomy.

The earnest desire to find a biological basis for the entity of a clinical picture of a disease, especially in psychoses, is diligently to be pursued, but it has, however, a long way to go.

There are psychoses with constitutional pathogenesis and psychoses with plasticity of constitutional pathology. Between the two are inserted a series of types in which the pathogenetic and pathoplastic rôle of the constitutional and constellative items appear in varied degree.

Biological psychiatry starts at the phenotype; its aim is the genotype. Biological psychiatry must be evolved from clinical psychiatry.

It is at the present time not possible to give a system for psychoses in this sense. However, it is necessary in the future to consider more than has been done so far the constitutional and conditional, somatic and psychic moments.

SCHILDER, P.: **Monocular Polyopia in Hysteria** (Ueber monokulare Polyopie bei Hysterie). *Zeitschrift für Nervenheilkunde*. 1920. Bd. 66, H. 5-6, p. 250.

The author, on the strength of a case of hysteria, shows that Parinaud's view of monocular spasm is wrong, and that many of the reports in literature of spasms of convergence in polyopia must be estimated in the same sense as he does his own.

The main symptoms in the case of an hysterical lady, aged fifty, were spasm in the attempt at converging and accommodating the muscles, and monocular diplopia and polyopia in focusing occurred. These functional disturbances occurred by attacks of one-half minute, mainly when the eye was lowered.

The patient sees three kinds of double images, first the so-called esophoria, which is binocular and evidently due to disturbed equilibrium, then double images, due to spasm in convergence, and finally monocular double images, which ensue when the same eye or the

other is seized by a spasm when the eye is in the act of converging.

The images appear arranged on different levels, the middle one being on the lowest. They are arranged horizontally as well as vertically without distortion.

If myastagnus is produced experimentally, polyopia is increased. Homatropin does not stop polyopia. Usually there is macropsia during the attack, and moving of the images is frequently observed.

Physical examination gives no explanation for the disturbance. Polyopia in this case cannot be explained by spasm of accommodation on account of the following:

(1) Monocular polyopia very often occurs in the eye relatively at rest and with contrasted pupil, while the other eye is converged. When the maximum of convergency is reached, polyopia disappears.

(2) An unexplained system in the arrangement of the images is prevalent, the middle one being on a lower level.

(3) Polyopia persists after accommodation is paralyzed by homatropin.

GRASSMUCK, J.: A Case of Acute Poliomyelitis in An Adult. *Deutsche Zeitschrift für Nervenheilkunde*, 1920, Bd. 66, H. 5, and 6, p. 312.

A young man, 21 years old, fell ill with pain in the lumbar and sacral region, extending to the left ureter. Two days later the right leg was paralyzed, the left one showing slight paresis. Constipation and difficult nutrition, and a low febrile state were the symptoms. Three days later some diffuse bronchial sounds were heard over the entire lung area. On the third day slight pneumonia of the left lung developed, and heart failure was the cause of death on the sixth.

The postmortem examination showed slight hyperemia of the soft tissues of the brain, hyperemia of the soft tissues of the spinal cord and discoloration in the lumbar marrow. The spinal cord was swollen in the upper lumbar section, the posterior horns being hyperemic. The lower part of the left lung revealed lobular pneumonia; the right upper part of the right lung, the beginning of the same process.

The spleen was enlarged, and had a dark red pulp.

These postmortem findings made it possible to establish the diagnosis of poliomyelitis. Histological findings rendered it more certain.

Poliomyelitis in adults is not so frequent as in children.

Wickman reports an epidemic of 1025 occurring in 1905 in Sweden, where 220 cases were those of patients over 15 years old. Leegard in the same year found 179 cases of adults among 194. Zapert among 525 cases gives only 23 adults.

The author's case was sporadic.

Adults as a rule show more severe pain in the lumbar and sacral region than do children.

The splenic swelling in the author's case is of interest. According to recent research the virus of poliomyelitis is found, aside from the spinal cord, in the brain and the blood, as well as in the spleen.

KITABAYASHI, S.: Concerning Heterotopy of the Plexus Choroidei.
Schweizer Archiv fur Neurologie und Psychiatrie, 1920, xi, No. 1, p. 154.

In examining the choroid plexus of a twenty-nine-year-old schizophrenic, the author discovered interesting misplacements of parts which he states have never hitherto been described. These heterotopies were of three sorts:

(1) A wedge-shaped projection of the flocculus was found in a dorsal direction at the level of the tuberculum acusticum in the space between the latter and the flocculus. This projection consisted of a tissue, poor in cells, which seemed to correspond to the medulla of the cerebellum with a layer of nuclear cells similar to the cerebellar nuclear layer. This outgrowth of the flocculus contained a heterotopic formation of the choroid plexus, characteristic villi appearing in the middle of the nuclear layer and, in part, in the medullary.

(2) There was a second structural deviation in the oral part of the cornu ammonis near the fimbria, consisting of two abnormal spaces, one in the form of a figure eight and the other irregularly round; these were filled with vascular tufts from the plexus choroidei.

(3) There was a third misplacement in the medullary region

nearly midway between the corpus geniculatum externum and the nucleus caudatus, on the ventricular wall practically at the level of the tanea semicircularis; this was in the shape of a bulging of the plexus choroidei into the brain substance. This is a peculiar form of heterotopy, not so much a displacement of the choroid plexus as an invagination of the vascular tufts in an unusual direction.

These abnormalities are assumed by the author to be due to disturbances of development in various embryonal stages. The third form he assumes to have originated in a late embryonal stage in such a way that the tufts which had already attained normal development bent out into the region of the taenia semicircularis. He accounts for the formations belonging to the choroid plexus in the wedge-shaped outgrowth of the flocculus and in the cornu ammonis by supposing that the ependyma mother cells for the plexus choroidei were at an early stage of embryonal development carried out into the primitive layers of the cerebellum and cornu ammonis where they developed. These heterotopies were of nearly normal structure for the plexus, consisting of vascular tuft cells, vascular loops and perivascular spaces with characteristic connective tissue, and this structure was retained.

S. E. JELLIFFE.

HELD, W.* **Serumtherapy in Epilepsy** (Serumtherapy in Epilepsie). *Neurologisches Centralblatt*, 1920, No. 18, p. 594.

Held sets forth in a lucid manner his method of treating epileptics with antiepileptic serum, which he terms semiautogenous, because it was derived from animals which were inoculated with fluids taken from the patient.

He has treated 400 patients in this manner, part of whom had tried every other therapy and had to be broken of the bromid habit which Held considers almost as dangerous as the epilepsy itself.

In 70 per cent of the epileptic attacks, which previous to the use of serum injections occurred every day or week, the frequency was reduced to once a week or month. After treatment 18 per cent of the patients were well and without attacks for from two to four years. In 30 per cent results were unsatisfactory.

Some of these patients continue taking injections of serum *per os* as a preventative, although they continue their daily occupations. In 1916 Held published in the Pacific Medical Journal his view-point in regard to the causes of epilepsy.

He gave a description of how each set of glands has its separate function, and how no one set can fully replace any other. If any glandular function is at fault, the toxins produced by it will, for instance in epilepsy, enter the centers of convulsive action in the brain and pons by the way of the blood circulation.

In epileptics faulty function is established; it may result from sudden shock, and Held thinks may therefore be cured. Even after cases resulting from shocks, a rearrangement in the function of a set of glands may occur.

A case of an epileptic is reported who, while working on a roof, fell and broke both legs. With the healing of the legs the epilepsy disappeared. There have also been cases reported of epilepsy disappearing with typhoid fever.

Toxemia causes epilepsy. Experiments show that normal test animals inoculated with epilepsy serum react by slight convulsions which soon pass away, leaving the animals in good condition. However, those who oppose serum therapy in epilepsy claim that these experiments are merely a proof of anaphylaxis. If that were true however, repeated inoculation would have shown an increase of susceptibility with renewing inoculation. This however was not the result.

**Published during Dr. Held's stay in Berlin.*

GRUBE, K.: **The Behavior of Blood Sugar in Cases of Diabetic Neuritis and Neuralgia.** *Deutsche Zeitschrift für Nervenheilkunde*, 1918, lx, 302.

The writer reports 7 cases of diabetic neuritis in which sugar excretion was fairly well controlled by diet. The neuritic phenomena were acute and lasting, in spite of the apparently slight sugar excretion, and in some cases (neuritis optica, impotence) could not be removed. It is apparent, accordingly, that in spite of the rapid decrease in sugar in the urine, the blood sugar (according to Bang's micromethod) remains high for some time and can be brought down

to normal only by slow and active measures. The neuritic phenomena are influenced by the abnormally high blood sugar content, whether the irritation is caused by the glucose itself, or by the product of decomposition. Analogous influences upon the centers involved must be considered for importance. In order to avoid this stubborn and usually severe complication, control of the blood sugar should be established in addition to examination of the urine, at least in cases in which difficulties arise in diminishing small sugar quantities.

S. E. JELLIFFE.

SOUQUES, M.: **A Case of Parkinson's Disease Following Lethargic Encephalitis** (Un cas de Maladie de Parkinson consecutif a l'Encephalite lethargique-role des Emotions vives dans cette Maladie). Report of the *Societe de Neurologie de Paris*, March 6, 1920; reviewed in *Revue Neurologique*, 1920, A. xxvii, p. 463.

At the session of the Paris Société de Neurologie, Souques presented the rôle played in Parkinson's disease and the incorrectness of attributing paralysis agitans to vivid emotions.

The case from which he derived his conclusions was that of a woman of sixty-six years of age. She had been suffering from fever, feebleness and narcolepsy for three weeks. For some days she had been lethargic. A state of intermittent lethargy ensued. At this time her right leg began to tremble, and this trembling soon spread over the entire body. Souques at that time diagnosed the condition as one of insipid Parkinson's disease and narcolepsy. Since then he has seen 4 patients, who have showed paralysis agitans following infectious disease, and Netter, Gower and Dana have published similar observations on similar cases, in which Parkinson's disease had followed typhoid fever, pneumonia, scarlet fever, etc.

As to the possible rôle of shock as a cause of paralysis agitans, four months previously the patient had suffered an attack of violent trembling of the limbs on the occasion of a nightly bombardment. It had however, stopped after half an hour, and had not reëcurred.

INTERNATIONAL MEDICAL DIGEST

Vol. II

FEBRUARY, 1921

No. 2

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	98
Section on General Medicine - - - - -	99-140
Section on Laboratory and Research - - - - -	141-158
Section on Pediatrics - - - - -	159-168
Section on Roentgenology and Electrotherapeutics - - - - -	169-182
Section on Neurology and Psychiatry - - - - -	183-192
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-viii
Index of Subjects - - - - -	viii-xviii

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1920, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITZ
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATSON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER



INTERNATIONAL MEDICAL DIGEST

Vol. II

FEBRUARY, 1921

No. 2

SECTION ON GENERAL MEDICINE

UDAONDO, C. B.: **Regurgitation of the Duodenal Contents in the Diagnosis of Duodenal Ulcer** (Le reflux biliopancreatique dans le diagnostic des ulcerations du duodenum). *Archives des maladies de l'appareil digestif et de la nutrition*, Jan., 1919, x, No. 1, p. 38.

The author found that out of 13 patients who were suffering from ulcer of the first portion of the duodenum, 81 per cent gave positive tests for bile and trypsin in the stomach contents.

H. M. FEINBLATT.

GRENET, H. AND DROUIN, H.: **Treatment of Chronic Tuberculous Infections by the Sulphates of the Heavy Earths.** Proceedings of the *Academie de Medecine de Paris*, March 9, 1920; reported in *La Presse Medicale*, March 27, 1920, xxviii, No. 17, p. 162.

The authors have experimented with intravenous injections of *sarium*, *neodyme* and *praseodyme* in aqueous solution, in the treatment of various chronic tuberculous lesions.

Frouin has shown that these salts have a direct action, *in vitro*, on the morphology and chemical constituents of tubercle bacilli, and that they produce, *in vivo*, a progressive mononuclear leukocytosis.

Knowing these facts, the authors treated 37 cases of tuberculosis of the skin and 24 cases of pulmonary tuberculosis by intravenous in-

jections of from 2 to 5 c. c. (32.4 minims to 1.35 fluidrams) of a 2 per cent aqueous solution of the salts. Twenty injections were given in each case at five- to twenty-day intervals. The results were as follows:

(1) Tuberculid (13 cases) and tuberculosis of the skin (24 cases). Cure, more or less rapid, without local treatment.

(2) Pulmonary tuberculosis (24 cases, in 21 of which the sputum was positive). Improvement in the general condition, and sometimes complete cessation of expectoration. In some cases, the bacilli could not be found in the sputum after treatment. In others, the bacilli were changed and poorly staining. The râles became less moist, and finally disappeared. The results are not obtained immediately after treatment.

S. KAHN.

FROUIN, A.: **The Treatment of Varicose Ulcers, Chronic Metritis and Chancroid with the Salts of the Ceric Earths** (Traitement des Ulcères variqueux, des Metrites chroniques, des Chancres mous, par les Sels de Terres ceriques). *Bulletin de l'Academie de Medecine de Paris*, April 6, 1920, No. 14, p. 337.

The author refers to former studies regarding the action of rare earths upon different kinds of microbes *in vitro*. He observed that the salts of these earths have the property of modifying the biologic characteristic of various microorganisms when mixed with the culture media. He also was able to prove that these salts agglutinate the bacteria and diminish the virulence and toxicity of bacillary emulsions. These studies suggest to him the use of the salts of the ceric group in the treatment of several infections. He lately applied his method to the treatment of varicose ulcers, chronic metritis and chancroid. The salts generally used were the sulphates of ceric earths, most specially lanthanum. He prefers the sulphates to the nitrates and chlorids because they have the same antiseptic action and are less irritating. He uses these salts in 2 per cent or 4 per cent solutions, applying them with swabs or on a wet dressing. The results were encouraging.

C. F. ARROYO.

ROBINSON, G. C.: **The Value of Large Single Doses of Digitalis in the Treatment of Heart Disease.** *Southern Medical Journal*, June, 1920, xiii, p. 396.

Robinson advocates the administration of tincture of digitalis in large single doses as a useful method of treatment in certain cases of heart disease provided the tincture is standardized, the dosage regulated and the patient kept under close observation. This method of observation brings the heart rapidly under the influence of the drug, but also affords a more accurate means of studying its effect than the older methods of small repeated doses.

The use of large single doses is apparently not dangerous under the conditions specified. Problems of dosage especially to body weight still need solution. The beneficial effect of digitalis in cases with cardiac irregularity caused by auricular fibrillation is especially emphasized by his experience with large single doses in this condition.

M. KESCHNER.

THIBIERGE, G. AND BOUTELIER: **The Oculo-Cardiac Reflex in Syphilis.** Fourteenth *Congres Francais de Medecine*; abstracted *La Presse Medicale*, 1920, No. 37, p. 336.

The authors found that the oculo-cardiac reflex was frequently found in syphilis. It increases with the progress of the disease and is absent in four-fifths of all the neurosyphilis cases. It does not seem to have a prognostic importance and cannot be considered a diagnostic equivalent to the clinical, bacteriological or hematological signs of the disease.

M. H. KAHN.

VAQUES, LAUBRY AND DONZELOT: **Treatment of Syphilitic Aortitis.** *Congres de Francais de Medecine*; XIV; reviewed in *La Presse Medicale*, May 29, 1920, xxviii, No. 35, p. 343.

The treatment of syphilitic aortitis should be begun early, and should be intensive.

(a) A series of eight intravenous injections of novarsenobenzol is given, at weekly intervals.

(b) A series of intravenous injections of mercury cyanide, 1 to 2 cc. (.1543 to .3086 grams), is given. These injections are given every other day during the course of the novarsenobenzol treatment.

(c) *Iodids*.—This course of treatment should be repeated every 3 or 4 months at first, and less frequently later.

The indications and contraindications should be based upon:

- (1) The general resistance of the patient.
- (2) The condition of the kidneys.
- (3) The state of the myocardium:
 - (a) Aortitis without cardiac insufficiency.
 - (b) Aortitis with cardiac insufficiency.

When the aortitis is uncomplicated, the arsenic and mercury treatment should be intensive. The results are often remarkable, both from a subjective and objective point of view.

When cardiac insufficiency is associated with the aortitis, it is better to abstain from arsenic, and to use only mercury and iodids. Cardiotonics should also be given.

S. KAHN.

WELCH, T. B.: **Observations on a Case of Onyhalai in the East African Protectorate.** *Journal of Tropical Medicine and Hygiene*, 1920, xxiii, pp. 138-140.

A man twenty-five years of age came to the hospital apparently in good health, but stated that he had been bleeding from the mouth for a week. It was found that he had bullæ or ulcers or both in the mouth and on the skin. The digestive apparatus was normal and the respiratory tract was also normal. The spleen seemed slightly tender, readily palpable and extended one and one-half inches below the costal margin on expiration. The organs of special senses were normal except for a slight yellowness of the sclera, which is quite common among the natives. The condition of the mouth and teeth was good, no pyorrhea being evident. The tongue was flabby and tremulous and was covered with a black fur. There was a small ulcer from which blood oozed freely, situated about one inch from the tip of the tongue. Between the ulcer and the tip of the tongue

there was a small bulla. On the right margin of the tongue was a small ulcer which was deeper than the other one, and it also was bleeding. On the roof of the mouth was a large clot of blood which when removed disclosed a large bleeding ulcer beneath. The clot reformed in a day after its removal. The inner surface of the right cheek showed a clot like the one on the roof of the mouth. There was no hyperemia in the area surrounding these ulcers. In the anterior nares, on the right side of the septum was a bulla resembling that on the tongue. There were a number of bulla on different parts of the body which left no pitting on recovery. The urine showed much blood from the fifth to the ninth day but by the fifteenth day the blood had disappeared till it was not discernible microscopically. The feces were of a black tinge, probably due to swallowing blood. Fresh lesions of the mouth and skin appeared up until the eighteenth day of the disease. The blood films made showed no parasites and no abnormal white or red cells were found. The treatment consisted in moderate doses of calcium chlorid for several days and a tonic of quinin and iron. The stools were kept soft to prevent irritation. Diuretics and anthelmintics were also used as the patient had a tape-worm and also round worms. Whether or not any treatment given for onyalaï was responsible for recovery seems doubtful, although the patient left the hospital thirty-four days after entry in excellent health.

F. HULTON-FRANKEL.

GARROD, SIR A. E.: **The Diagnosis of Disease of the Pancreas.** *British Medical Journal*, April 3, 1920, No. 3092, p. 459.

The more constantly we bear the pancreas in mind as a possible seat of origin of obscure abdominal conditions, the less likely we shall be to miss its lesions, but no sign or symptom is pathognomonic. A grossly enlarged pancreas forms a tumor lying between the xiphoid and the umbilicus. Pain, continuous or paroxysmal, may be felt in the abdomen, but of more significance is the presence of pain across the back. Of pressure symptoms, jaundice is the most conspicuous, and in carcinoma of the head of the pancreas this may be extreme, with absence of urobilin in the stools. But the duodenum may be obstructed and the portal vein or vena cava may give evidence of pres-

sure. Some of the signs of Grave's disease may be present, tremor, dermatographia, Möbius' and Stellwag's signs and exophthalmos, which are due to disturbance of the sympathetic through the ganglia which lie so near to the pancreas. Loewi's test or adrenal mydriasis, which is based upon the hypothesis that the pancreas exerts a restraining influence upon the excitability of the sympathetic system, is strongly suggestive of a pancreatic lesion. The indications of abeyance of the external secretions of the gland are the most valuable aids to diagnosis, and of these, true steatorrhea, stools of liquid fat which solidify on cooling is of the greatest importance. If in addition to this there is an obvious failure of protein digestion, the evidence is fairly conclusive. If the condition is noted early, there may be an increase of diastase excretion in the urine. Glycosuria except in chronic pancreatitis is not common. Every sign, symptom or test may fail at times, and in each case there is need to balance the quantity and quality of the evidence for or against disease of the pancreas.

L. C. JOHNSON.

STRAUSS, R.: **Diagnosis of Carcinoma of the Stomach, Considered from a Standpoint of Gastric Secretions** (Zur Diagnose des Magenkarzinoms unter besonderer Berücksichtigung der Sekretionsbefunde). *Berliner klinische wochenschrift*, March 15, No. 11, p. 251.

Strauss made a statistical study of 190 cases. These were definitely diagnosed either by operation or at autopsy. It was the cause of death in .8 per cent of all deaths. Males gave a percentage of 67.6 and females 32.4. One-fifth of all cases gave a previous history of gastric disease. Eight per cent of cases were found to be the result of ulcer. HCl was positive in 19 per cent and negative in 81 per cent of cases. Lactic acid was positive in 83 per cent. In only 1 case was HCl present in connection with lactic acid. Occult blood was present in 64.7 per cent of cases. Palpable tumor was present in 60 per cent; a resistance in 21 per cent; and negative palpatory findings in 19 per cent. Fifty per cent of cases in which no masses were palpable preoperatively were found to be operable cases. Of all cases 17 per cent were operable.

H. JOACHIM.

CHALMERS, A. J., AND MACDONALD, N.: **Some Cosmopolitan Sudan Skin Infections. I. Herpes Iris.** *Journal of Tropical Medicine and Hygiene*, 1920, xxiii, pp. 150-152.

Herpes iris is a form of erythema multiforme. In Khartoum and the tropics the mild form of the disease is the one met with. The eruption takes the form of rounded spots distinctly raised above the level of the surrounding skin and having centers occupied by large vesicles which are separated from the peripheral vesicles by a zone of congestion. There is no pain, but a slight constitutional disturbance which quickly disappears when properly treated. The histologic findings are dilatation of the vessels of the papillæ followed by a considerable amount of edema. This is followed by the dilatation of the intercellular spaces of the epidermis which may go on to the formation of vesicles. Cellular accumulations may be noticed, among the vessels in the cutis, even in the deepest parts. The edema disappears. This exudate is also noted in the papillæ and extends into the epidermis, in which the cells of the rete may be seen degenerating in places, while the stratum granulosum has disappeared. The elements forming this exudate are largely polymorphonuclear, but a few mononuclears are also noted. No causal organism can be found for the cutaneous lesions and the general tendency is to look on all forms of erythema as being due to anaphylaxis caused by the absorption of some chemical product from the intestine or other diseased organ. It would appear that the primary seat of the disease is the papillæ, that this anaphylaxis takes place there and that all other pathological phenomena are processes of excreting the poisonous effects or neutralizing products.

The essential features of the diagnosis are: (1) the central vesicle or bulla; (2) the surrounding ring of vesicles; (3) the affection of the lips and mouth; (4) the formation of several rings of vesicles outside the first; (5) the slight constitutional disturbances; (6) the tendency to recur if not properly treated.

It can be differentiated from erythema iris by the fact that in the former there is a vesicle surrounded by erythematous blush. The central vesicle dries up and forms a scab and a ring of secondary vesicles forms outside this scab while the erythematous area embraces the whole. The prognosis is usually good in the simple form of herpes iris because there is a tendency for the disease to amelior-

ate of its own accord, but recurrences are likely to occur without proper treatment. The first aim of the treatment is to find the site from which the resorption is taking place, and treatment is regulated accordingly.

F. HULTON-FRANKEL.

LINDSTEDT, D. E.: **Etiology and Pathogenesis of Sciatica** (Zur Kenntnis der Aetiologie und Pathogenese der Ischias). *Deutsche medizinische Wochenschrift*, June 17, 1920, No. 25, J. 46, S. 688.

Lindstedt's thesis is that sciatic neuralgia is in most cases due to peripheral reflex irritation. In a carefully studied series of 100 cases he could find in 91, objectively or anamnesticly, or both, definite evidences of such reflex irritation. Three cases showed neoplasms (of the vertebral column, in the gluteal and lumbosacral regions). Eight cases had changes in the vertebral column (spondylitis deformans 4, organic scoliosis 3, fracture 1). Eleven cases had hipjoint disease. In 3 there was pelvic disease (salpingitis 2, post-operative hernia after appendicitis 1). Two cases had fractures of the femur. Four had high-grade genu valgum and genu varum: 4, genu recurvatum; 5, severe trauma to the feet; 3, high-grade flat-foot; 1, malformation of feet; 12, polyarthritides (rheumatic 8, gonorrheal 4); 8, marked venous varicosities; 1, poliomyelitis; 3, constitutional static weakness; and 2, sepsis. In the remaining 9 cases no local source of peripheral irritation could be determined.

The fact that in most cases the sciatica was on the same side as the local irritation seems to the author to be of great etiological significance. He remarks that all the above enumerated factors have long ago been considered causes of neuralgic sciatica, but only when they were so situated that they caused direct pressure upon the sciatic nerve; i. e., the so-called secondary neuralgia. When such direct pressure did not exist or could not be ascertained, the neuralgia was not considered genuine sciatica. Lindstedt does not agree with this conception of the disease. He believes that any of the pathological conditions mentioned can produce peripheral sensory irritations and pains, which are reflected to the region of the distribution of the sciatic nerve. He also believes that the reflection of these irritations is brought about by an exhaustive state of the muscles, pro-

duced by anomalies of "station". That is, the above mentioned pathological conditions, give rise to anomalies of "station" (static anomalies), because the patients are compelled to assume certain postures of "election" in order to remain comfortable and free from pain. The remaining for a long period of time in such posture leads to a state of fatigue or exhaustion in the muscles concerned. These static anomalies are not necessarily confined exclusively to the muscles of extremities, but in severe cases may also involve the lumbar muscles on the affected side.

The author thinks that all individuals afflicted with the conditions enumerated do not develop sciatic neuralgia because all individuals are not equally susceptible to peripheral irritations in general, and individuals with sciatic and other forms of neuralgia are burdened with a pathological hypersusceptibility of their sensory nervous apparatus to peripheral irritations. Folkstedt says that no one knows why this hypersusceptibility exists in some individuals and not in others, but that it is a well-known clinical fact that this hypersensitiveness of the nervous system leads to an abnormal state of nervous exhaustion, which he thinks is of utmost etiological significance as a predisposing factor in the neuralgias.

M. KESCHNER.

GASKALL, J. F.: **Notes on Blackwater Fever in Macedonia.** *Annals of Tropical Medicine and Parasitology*, 1920, xiv, pp. 3-15.

The etiology of blackwater fever is still in doubt. During the war the Serbian army had a number of cases in the Base Hospital at Salonika and the conclusions reached in studying these cases were that they support the view that the pathology of blackwater fever consists in the sudden occurrence of an extensive hemolysis in the blood stream brought about in certain cases of chronic malaria by the administration of quinin; exposure to cold is a contributory factor. The hemolysis is essentially chemical in nature and is completed in a short time, being in most respects comparable to the hemolysis of paroxysmal hemoglobinuria. The excretion of the hemoglobin liberated can be successfully accomplished so long as it does not pass through the kidney in too concentrated a form. If it is too concentrated, coagulation takes place in the loops of Henle and suppression

of urine occurs which is usually fatal. Continuation of quinin treatment increases the toxic conditions caused by the attack of blackwater fever and also increases the probability of suppression, though it does not appear to prolong the period of actual hemolysis. The treatment should therefore try to prevent collapse and to dilute the hemoglobin and toxins by the administration of fluids in quantity by every available method. Quinin should be stopped as soon as blackwater fever is discovered. Besides being dangerous the quinin is unnecessary, as the fever attack itself destroys the malarial parasites in the circulation.

In any patient a critical dose of quinin is necessary to produce an attack of blackwater fever, but in such patients malaria may be treated by doses of quinin below this limit.

F. HULTON-FRANKEL.

GOLDMAN, A.: *Hymenolepis Nana*; Possible Cercocystis Stage. *Archives of Internal Medicine*, Sept., 1920, xxvi, No. 3, p. 373.

Goldman reports the case of family infection with the dwarf tapeworm in St. Louis, Mo., 7 members of one family being infected. In one stool, following the administration of a vermifuge, there was found a number of heads, each surrounded by a sac-like structure which the author suggests may represent the cercocyst stage of the parasite, thus indicating that man himself may be the intermediate host. A review of the literature shows that the dwarf tapeworm is the most common tapeworm in many parts of the United States.

T. HOWARD.

GIBSON, C. L.: The Result of Operations for Chronic Appendicitis; a Study of 555 Cases. *The American Journal of the Medical Sciences*, May, 1920, clxix, Part 5, No. 578, p. 654.

To avoid disappointing results after operations the author recommends the following:

- (1) A comprehensive and detailed history.
- (2) A complete and thorough physical examination, including all refinements of diagnosis.

(3) The exercise of caution in undertaking operations on women as compared to men.

(4) The exercise of caution, particularly in the more mature patients, particularly women. In this class other lesions may co-exist or may be mistaken for appendicitis.

(5) To avoid the neurasthenics of any age or sex.

(6) To exercise particular restraint when there is no clear and reliable history of well-defined attacks, particularly of localized pain accompanied by nausea or vomiting.

(7) To make a good-sized incision, and, even if a frankly pathological appendix is found, to look for other possible lesions.

(8) If no obvious pathological appendix is found, do not cease to look for other possible lesions until every other possibility has been exhausted; make a supplementary incision if necessary.

The possibilities of adhesions probably provoked by the irritating effects of iodine carried in by the gloves, caused the author to change to a 5 per cent solution of picric acid in alcohol for sterilization of the skin with noticeably good results.

A. T. MAYS.

HIGLEY, H. A., AND FIELD, C. W.: **Some Phases of Blood Chemistry of Practical Use to the Practitioner.** *Medical Record*, July 31, 1920, xcvi, 169.

The authors conclude that by the use of coefficients an accurate measure of the functional activity of the kidney for five substances is easily ascertained; that these coefficients are of value only in the diagnosis of functional conditions and in early cases; that they are not an indication of a true nephritis and cannot be used by themselves to determine whether or not there is to be an anatomical lesion of the kidneys; and that these coefficients are remarkably constant.

The functional condition due to poor general physical tone is paralleled in the case of the heart which may show signs of a serious lesion, though a good clinician differentiates the two conditions and can as a rule decide whether the cardiac symptoms are due to a true organic lesion or is merely functional in capacity.

The authors recommend the following methods for the determination of renal function.

For urea both in the blood and urine the Van Slyke and Cullen method, (*Jour. A. M. A.*, 1914, lxii, 1558).

For uric acid, the Folin method as modified by Benedict (Benedict, S. R., and Hitchcock, E.: *Jour. Biol. Chem.*, 1915, xx, No. 4, p. 619).

For creatinin, the Folin method (Folin, O.: *Jour. Biol. Chem.*, 1914, xvii, No. 3, p. 475).

For sugar, Benedict's methods (Benedict, S. R.: *Jour. Biol. Chem.*, 1918, xxxiv, No. 1, pp. 195 and 203).

For chlorids, Van Slyke and Donleavy (Van Slyke, D.D., and Donleavy, J.J.: *Jour. Biol. Chem.*, 1919, xxxvii, No. 4, p. 551).

M. KESCHNER.

CAREY, H. W.: **Anthrax from the Shaving Brush and Primary Anthrax Meningitis.** *The American Journal of the Medical Sciences*, May, 1920, clx, Part 5, No. 578, p. 742.

A case is reported of a man of thirty-four years of age, who had purchased a ten-cent shaving brush and had infected his chin by cutting off the top of a pimple while shaving. A typical pustule quickly formed. The area was excised completely and sutured without drainage. No serum was given. Smears from the vesicles contained many bacilli and injection of a bouillon culture killed a guineapig in twenty-four hours, and the smears showed the typical anthrax bacilli. Meningitis due to anthrax may occur without any apparent point of entry. The spinal fluid is always bloody and contains anthrax bacilli in large numbers.

A. T. MAYS.

AUBERTIN, C. AND YACOEI, J. **Pernicious Anemia and Azotemic Nephritis** (L'Anémie Grave dans la Néphrite Azotémique). *La Presse médicale*, July 10, 1920, xxviii, No. 47, pp. 461-2.

The coëxistence of anemia with nephritis is well recognized. The anemia has been explained by a dilution of the blood in nephritics, due to the chlorid and water retention (Grawitz, Ewing, Labbé).

Severe pernicious anemias, however, do not occur in cases of nephritis with edema, in which there may be a dilution of the blood by the water retained. They are present, on the contrary, in cases of nephritis with nitrogen retention and without edema. Refractometry in these cases demonstrates the fact that here is no dilution of the blood. Anemias, associated with nonazotemic nephritis, are rare.

The authors report 2 cases of anemia of the pernicious type, associated with azotemic nephritis. In the first case the red cell count was 1,100,000 and the hemoglobin, 35 per cent. When the nitrogen retention was less marked, the anemia also became less marked. Before death, when the azotemia was very high, the erythrocyte count was 900,000. There were no myeloid elements in the blood—neither erythroblasts nor cells of the myelocytic type. At autopsy, the bone marrow was found to present no reaction whatever.

In the second case similar findings were obtained.

In order to determine whether there was a causal relationship between nitrogen retention and anemia, the authors examined the blood of 17 patients for its nitrogen content and its erythrocyte content.

TABLE: PART I

<i>Azotemic Nephritis</i>		<i>Edema</i>	<i>Azotemia</i>	<i>Anemia</i>
Case	1	O	2.2	1,100,000
			4.4	900,000
Case	2	Slight	1.25	
			3.80	1,700,000
Case	3	O	4.49	950,000
Case	4	Slight	5.54	1,980,000
Case	5	+	2.5	2,500,000
			8.4	1,750,000
Case	6	+	1.69	2,250,000
			4.85	
Case	7	O	2.11	2,600,000
Case	8	O	1.21	2,620,000
				3,200,000
Case	9	+	1.8	4,000,000
Case	10	O	3.4	3,700,000
Case	11	O	0.8	3,700,000

TABLE: PART II

<i>Nephritis Without Azotemia</i>		<i>Edema</i>	<i>Azotemia</i>	<i>Anemia</i>
Case	12	O	0.55	
			0.35	4,500,000
Case	13	O	0.41	4,000,000
Case	14	O	0.34	3,500,000
Case	15	+	0.32	3,500,000
				4,000,000
Case	16	O	0.42	2,260,000
			0.46	4,500,000
Case	17	O	0.54	4,350,000

From this table it is evident that all cases of anemia of the pernicious type (1, 2, 3,) belong to the group of azotemic nephritics. In Cases 4 to 11, the erythrocyte count is about 2,500,000. From Case 5 on it is seen that the anemia may vary directly with the azotemia.

In the cases of nephritis without azotemia, the anemia is almost negligible. In Case 16, the anemia was marked at first, but instead of becoming more severe, as in the azotemics, it rapidly disappeared.

In chronic nephritis, therefore, anemia seems to run parallel with azotemia. But the authors believe that the anemia may bear no relationship to the nitrogen retention, and may be due to various causes. Of these, gastro-intestinal disturbances associated with the azotemia, may be of importance.

Whatever may be the pathogenesis of the anemia associated with azotemic nephritis, it is of great importance because of the frequency of the condition, and because of its gravity.

S. KAHN.

ANDUZE-ACHER, R.: **Urobilinuria: Its Origin and Clinical Significance** (*L'Urobilinurie: Son Origine La Valeur Clinique*). *These de Paris*, 1920; reviewed in *La Presse medicale*, July 7, 1920, xxviii, No. 46, p. 460.

Urobilin is a pigment resulting from the reduction and hydration of hemoglobin. The formation of bilirubin is an intermediate stage

in its production. In the last stage of reduction, urobilinogen is formed, whence comes urobilin.

Urobilinuria results from the retention of true bile pigments; i. e., bilirubin. Since the bile salts are often retained simultaneously with the pigments, the urine should be examined both for bile salts and bile pigments.

In icterus due to obstruction of the biliary passages, there is always a retention of bile salts and pigments, hence the urine will show a urobilinuria and a cholaluria.

In icterus due to hepatic insufficiency, the retention of the elements may be complete or dissociated. Hence, the urobilinuria and cholaluria will not necessarily be present simultaneously.

In hemolytic icterus, the pigments only are retained. In this condition, therefore, there will be a urobilinuria, but no cholaluria.

Since pigmentary retention is usually due to a lesion of the liver, urobilinuria is a sign of hepatic insufficiency, just as Hayem believed.

S. KAHN.

GLATARD, M.: **Intravenous Injections of Urotropin in Typhus Fever** (Typhus et Injections Intraveuses d' Urotropine). *Bulletins et memoires de la societe medicale des hopitaux de Paris*, July 1, 1920, xxxvi, No. 23, pp. 948-950.

Of 206 patients with typhus fever, Glatard treated 114 with intravenous injections of urotropin. In all, 333 injections were given, representing 940 grams (14,506.43 grains) of urotropin. The quantity given at each injection varied from 5 to 20 grains (0.324 to 1.30 grams) at the beginning, to 45 grains (2.925 grams) later. No ill effects were seen from the large dosage.

Injections were given daily. On the average, a patient received three injections, representing about 120 grains (7.80 grams) of urotropin.

The effects of the injections are:

- (1) *Immediate Reaction*.—None.
- (2) *Effect on Diuresis*.—Almost immediately after the injections there is profuse diuresis.
- (3) *Effect on Temperature*.—In 104 out of the 114 cases treated

by urotropin injections, there was a drop in the temperature by rapid lysis, with no evening remissions.

(4) *Effects on the General Symptoms*.—The injections have no effect on the myocardial or meningeal symptoms.

(5) *Effects on Mortality Rate*.—Of the 114 cases treated, only 16 died; i. e., 14 per cent. Of the 92 cases which did not receive the urotropin, 29 died; i. e., 29.8 per cent.

S. KAHN.

GLATARD, M.: 206 Cases of Typhus Fever (Reflexions Sur 206 Cas de Typhus Exanthematique). *Bulletins et memoires de la societe medicale des hospitaux de Paris*, July 1, 1920, xxxvi, No. 23, pp. 944-8.

The author makes the following analysis of the cases which he tested:

<i>Race</i> .—Europeans	69
Israelites	7
Moroccans	130
<i>Age</i> .—Adults	200
Children	6
<i>Sex</i> .—Male	151
Female	49
Children	6
<i>Result</i> .—Cured	159
Deceased	47
Mortality—about	22 per cent.

Incubation Period.—From four to twelve days.

Invasion.—From one to two days. Characterized by sudden rise in the temperature, and by headache. At the end of the above time, enanthem appears, a diffuse redness, associated with angina.

Symptoms.—Fever remains high with remissions. In enanthem, the buccal signs extend down to the respiratory passages, resulting in signs of bronchitis. The conjunctivæ were markedly injected. This is a very striking symptom. A rash appears on the fifth or sixth day. Occasionally it is not definite. Macules appear, bright red in color, of the size of a lentil, and not effaceable by compression. These rapidly become dull in appearance. Petechiæ are usually not seen,

but when they occur, they have the characteristics of an ordinary purpuric rash. They may be present synchronously with the macules. Usually the presence of petechiæ is an evidence of the severity of the infection. The rash is commonly seen on the trunk at first, and later spreads to the thighs, arms, and forearms, and may even be present on the phalanges. The face and the palmar surface of the hands are not involved. The macules and petechiæ gradually disappear after the fall in temperature, without any desquamation.

Respiratory System.—There may be an associated pulmonary congestion of more or less severity.

Circulatory System.—The myocardium is always affected. The heart sounds are distant. The pulse, at first rapid and full, later becomes hypotensive.

Gastro-intestinal System.—The tongue is dry, red at the margins, coated in the center. Constipation is common, but diarrhea with meteorism may occur in the severe cases. Splenomegaly is not constant.

Genito-urinary System.—Albuminuria is common.

Nervous System.—The nervous symptoms are always accentuated. Apathy and asthenia are marked. Coma may be present.

Defervescence.—This occurs on the twelfth or fourteenth day, usually by lysis. But the lysis is a rapid one. The fall of temperature does not immediately produce an improvement in the general condition of the patient.

Duration and Termination.—The duration of the disease is from sixteen to eighteen days. When death results, it occurs either at the height of the disease from myocarditis, pulmonary complications or meningitis, or during convalescence from cardiac failure or nervous complications; e. g., bulbar palsy, encephalitis, etc.

<i>Complications.</i> —Bronchopneumonia	2 cases
Phlebitis (left leg)	2 cases
Arteritis (right leg)	1 case
Parotiditis (suppurative)	1 case
Parotiditis (nonsuppurative)	1 case
Meningismus	4 cases
Lymphangitis of the lower extremities, with multiple abscesses (death from erysipelas)	1 case

Causes of Death.—During the height of the disease, the causes of death were as follows:

Hyperinfection	21 cases
Meningitis	4 cases
Erysipelas	1 case

During the decline of the disease, the causes of death were as follows:

Cardiac failure	4 cases
Arteritis with gangrene	1 case

During convalescence, the causes of death were as follows:

Cardiac failure	9 cases
Bulbar paralysis or encephalitis	6 cases

Therapeutics.—(1) Usual general and dietetic treatment of infectious fevers.

(2) Systematic intravenous injections of urotropin.

(3) Sodium nucleinate injections for the toxic and nervous symptoms.

S. KAHN.

FEILCHENFELD, D. L.: **Acute and Chronic Vagotonia.** (Ueber akute und chronische Vagotonie). *Deutsche medizinische Wochenschrift*, June 3, 1920, No. 23, J. 46, p. 627.

Feilchenfeld reports 25 cases of vagotonia. He divides them into four groups:

(1) *Acute Vagotonia.*—There were 10 cases; 2 of there were women between twenty and forty years of age; 2 were women over forty; 6 were males of different ages. All patients had a hysterical make-up, and in all of them the vagal attacks could be traced to psychic disturbances. In many of the women the fact that their husbands were over-attentive had an unfavorable effect on the disease, while in others the fact that their husbands were a continuously irritating factor served to prolong the duration of the disease.

The vagal attacks in this group were characterized by a sudden onset, with shivering, a sensation of chilliness, dizziness, severe pain in the head and back of the neck, nausea and vomiting. Many patients had fainting spells lasting for half an hour, followed by prostration and inability to get out of bed. Great anxiety, a sensation

of oppression in the cardiac region and dyspnea were regularly present, as were facial twitchings which extended to the entire body. The patients were pale, their pulse small, 40 and 52 per minute. In most of them the heart was objectively negative, but in some of them one could find immediately after the attack, a loud murmur with increased cardiac dullness and signs of cardiac insufficiency. In several the x-ray showed cardiac hypoplasia, which, however, could not be confirmed by cardiography.

(2) *Chronic Vagotonia (Latent)*.—There were 8 cases. In all of these the pulse was slow, small and weak. They complained of general weakness and fatigue; they had poor physical and mental capacity and diminished resistance to acute diseases. This last mentioned peculiarity is in harmony with the observations made by Eppinger and Hess to the singular susceptibility of vagotonics to atropin, pilocarpin, nicotin and other poisons.

Feilchenfeld was unable to find in his material as many patients with stigmata of degeneration, as other observers claim to have met in vagotonics. He refers to high arched palates, deformed auricles, facial asymmetries, high foreheads, profuse growth of hair in the frontal region, and staring eyes. On the other hand, dermatography, tendency to excessive perspiration, unusual development of the lymphatic elements in the blood, and obstinate constipation were quite common. While in the first group the acute attacks seem to be brought about by stimulation of the vagus, in the second group, he believes the attacks are precipitated by an improper balancing of the endocrines, a condition in which the sympathetic apparently plays an important rôle. His belief as to the endocrine etiology in this group of cases is strengthened by the results he obtained with organotherapy.

(3) *Paroxysmal Tachycardia (Vagus Weakness)*.—There were 3 cases. These are distinguished by the fact that the tachycardia is transitory and follows or replaces the ordinary attacks of vagotonia which are characterized by bradycardia.

The author's experience with this group has not been extensive and he hesitates to discuss it further than to emphasize the importance of determining in every case of tachycardia whether one is dealing with a case of vagotonia in which, owing to paresis of the vagus, a vagal attack is replaced by an attack of tachycardia, or whether one is dealing with a manifestation of sympathicotonia.

(4) *Acute Vagotonia with Myocardial Weakness.*—There were 4 cases. These were characterized by changes in the myocardium and transitory attacks of cardiac weakness: in a few patients' cases there was evidence of a beginning sclerosis of the cardiac vessels. The clinical picture was that of vagotonia modified more or less by organic heart disease, but with a predominance of the neurogenic element.

The prognosis of vagotonia is not unfavorable. All patients recovered completely, although the duration in some of the cases was unusually long. The outspoken hysterical patients were the most difficult to manage.

Treatment.—During the attacks purely symptomatic treatment was resorted to. Between the attacks, the author advises as much rest as possible, with daily packs, bromids, and occasionally digipuratum or other cardiac tonics. The chronic cases do best in sanatoria. Carbonated and iron baths are beneficial. The best climate is such as can be obtained at an altitude of from 600 to 1000 feet.

Few results were obtained from injections of hypophysin and pituglandol. Psychotherapy, however, played by far a most important rôle in the successful treatment of these patients. Its judicious application yields the most satisfactory results. This, Feilchenfeld states, may in some cases be as necessary for the husband of a vagotonic patient as for the patient herself. The prevention of the causes which precipitate the attacks is from a point of view of prophylaxis, *a sine qua non*.

M. KESCHNER.

SUNDWALL, JOHN: **Health Activities in Colleges and Universities.**

Public Health Reports, Nov. 7, 1919, xxxiv, No. 45, pp. 2489-2518.

It has been recognized of late that health is fundamental to sound intellectual development. Generally speaking there is serious economic loss in our schools and colleges due to lassitude, indisposition, illness, and epidemics among students,—all more or less preventable. To deal with the problem of the students' health, a Students' Health Service is established or is about to be established in most colleges and universities. The activities can be divided into three groups:

- (1) Personal attention
- * (2) Sanitation
- (3) Education

The personnel of a health service for a large university should include a director of excellent personality and unusual training; assisting physician, perhaps 1 for each 1000 students; nurses for hospital care of students, for visiting outside sick students, for inspecting rooming houses, etc.; and a competent laboratory technician, who may direct the division of sanitation.

The building and equipment should be used solely for the health service work and should be adequate to house the three divisions. It should include:

- (1) A dispensary.
- (2) A hospital for noncontagious diseases.
- (3) Adequate isolation quarters for contagious diseases.
- (4) A well-equipped laboratory that can be used both for clinical pathology and for the division of sanitation.
- (5) Necessary office space.

The activities of these three divisions are summarized as follows:

Aims.—The university health service endeavors to be a most potent factor in reducing to the very minimum that large annual academic and economic loss which is due to the indisposition and illness of students. Further, its aim is to help each student entering the university to possess a healthy, vigorous, active, and harmoniously developed body. The university health service stands for positive health.

Activities.—There are three main divisions to its activities:

(1) The personal division is concerned with the physical examination of all students. Complete physical records should be kept. From each record can be determined, in a large measure, just what procedure is necessary to keep the student in the best physical condition during his academic life. The following are some of the branches of the work in the personal division:

(a) Provisions for maintaining the health of the normal healthy student by means of proper exercise, etc.

(b) Protection of the physically sound student from communicable diseases, which are constantly creeping into the university, by the early detection and isolation of all cases of communicable disease—tuberculosis, typhoid fever, smallpox, scarlet fever, mumps, measles, etc.

(c) Provisions for the care and treatment of all such cases of communicable diseases.

(d) Reconstruction—reclamation.—Correction of defects, advice and treatment of all subnormals.

(e) Advice to and treatment of all ill students.

(2) Division of Sanitation.—The students' environment must be made as hygienic as possible; hence this division concerns itself with the sanitary conditions affecting the student both on and off the campus.

(3) Education.—Finally, every student in the university must be made familiar with the elements of personal (including mental hygiene) and public hygiene. Education in these important matters is carried on by means of courses in these subjects, daily bulletins, exhibits, and lectures.

J. B. NEAL.

CAALSMEER, W.: **Sinusal Arrhythmia.** *Nederlandsch Tijdschrift voor Geneeskunde*, March 15, 1919, i, p. 825; abstracted in *Archives des Maladies du Coeur*, Feb., 1920, p. 87.

Mackenzie and other authors described arrhythmia of adolescence and respiratory arrhythmia. There still exists other types of cases of sinusual arrhythmia. These are found especially during convalescence from infectious diseases.

Respiratory arrhythmia is distinguished by the following features:

- (1) The arrhythmia is present only while the heart beat its slow.
- (2) Increase in rate abolishes the arrhythmia.
- (3) Atropin has the same effect.
- (4) Arrhythmia persists experimentally even after a section of the vagus.

The other two forms of arrhythmia present the same features except for the effect of respiration.

It seems to be well established that sinusual arrhythmia depends upon the inhibitory nerve. Its effect is the same whether it is stimulated in the neck, or by compression of a high pulse or by the action of digitalis.

The author reports a case of a young soldier who, after a mild catarrhal respiratory infection, presented cardiac irregularities with edema. The pulse was rapid and irregular. At times, the a-c in-

terval was prolonged until it was finally blocked. Some slight movement made the pulse regular again. The patient had taken digitalis, but the arrhythmia persisted after the digitalis effect disappeared; the heart suddenly presented prolonged diastolic periods. The patient was finally cured. The case was one of exaggerated action of the heart to the accelerator and moderator nerves.

M. H. KAHN.

REID, W. D.: **Multiple Serositis.** *The Boston Medical and Surgical Journal*, Sept. 23, 1920, clxxxiii, No. 13, p. 386.

In 3,900 autopsies at the Massachusetts General Hospital there were 15 cases of multiple serositis, making an incidence of 4 per cent. These cases all showed chronic pleuritis, adhesive pericarditis, perihepatitis, and perisplenitis. This disease appears in the literature under many names, multiple hyaloseritis, zuckergussleber, hyperplastic perihepatitis, pericarditic pseudocirrhosis of the liver, indurative mediastinopericarditis, polyorrhomenitis, and Pick's disease. Study shows that the condition was only fully appreciated at autopsy. There were 9 males and 6 females; ages varied from four to seventy. Symptoms were: dyspnea, 7; weakness, 4; "never strong", 1; precordial pain, 3; palpitation, 3; anginal attacks, 1; edema of feet, 1; pain in joints, 1; fever, 1; dull ache in epigastrium, 1; purpura, 1; and swollen abdomen, 5. The pericardial cavity was obliterated in 7 cases, and in the other 8, the two layers were united by numerous fibrous bands. Various murmurs and thrills were present in 10 cases. Pericardial friction rubs were detected in 2 cases; and in 3 the heart was normal. Broadbent's sign was not present. Cardiac enlargement was found in 9 cases but these had also an endocardial lesion present. Physical examination of the abdomen showed that 9 cases were normal, and that 5 had definite ascites with well-marked perisplenitis and perihepatitis. The fluid was a typical transudate.

The pleural cavities showed fibrous adhesions almost to the point of obliteration.

Pathological study showed that in 7 cases chronic multiple serositis was the primary finding; in the remaining 8 it was listed as secondary.

Conclusions.—Chronic multiple serositis presents considerable diagnostic difficulties, particularly in the coexistence of other diseases. Both history and symptoms may fail to suggest the condition. Presystolic murmurs and thrills may be heard over the cardiac apex in the absence of stenotic change of the mitral valve as disclosed at autopsy. Broadbent's sign and paradoxical pulse may both be absent. Ascites may or may not be present. A history of the recurrence of abdominal effusion over a long period, perhaps of years, should suggest chronic multiple serositis. The condition is probably due to the occurrence of an infection of a virulence sufficiently low to permit the survival of the patient and the healing of the inflammatory lesions by fibrous adhesions. The physiology of absorption from the peritoneal cavity as described by Clark, Buxton, and others offers further light on the development of chronic multiple serositis.

M. M. BANOWITCH.

DRUMMOND, J.: *Seasickness (Malemar). Brazil Medico*. Rio de Janeiro, August 21, 1920, No. 34, p. 548.

The author presents a very interesting theory regarding the etiology and treatment of seasickness. He believes that it may occur in three different forms or stages.

First Stage.—This begins with headache, slight anxiety in the epigastrium, intestinal atony, cold sweats, intense pallor, and sometimes loss of consciousness. Frequently the only symptom is headache and hiccough. The patients become irritable.

Second Stage.—This presents intermittent vomiting. When the vomited substance contains blood, it indicates that the gastric contraction has reached the maximum of effort. Syncope must be feared on account of the deep asthenia. The diaphragm at times presents real tetany, compresses the lungs, hampers circulation, provokes dyspnea, tachycardia, intense anguish, and even recalls the picture of angina pectoris. Vomiting is accompanied by stomach ache, cold sweats, and general depression.

Third Stage.—This is very rare. The author has observed only 2 cases. The access is fulminant. Muscular relaxation is complete. The extremities become cold, respiration is slow and superficial, the pulse is almost imperceptible, the heart beat is weak and

arrhythmic, the face cyanotic, the consciousness foggy, the senses are almost abolished, and there is lethargus and complete anorexia. The skin retains its sensibility.

The pathogenesis of sea-sickness, according to the author, would be a nervous unbalance. The causes are multiform, from the suggestive effect of the conversations with other passengers and the idea of being on board of a ship to the many unaccustomed sensations received by all external senses.

The sight of the ever-moving horizon, of another ship going in the opposite direction, of the inclination of the different objects on board, excites the retina through the uncertain accommodation and transmits to the optical nerve a conductivity that excites the cerebral and cerebrospinal centers with variable intensity.

The ear is constantly aggravated by the noisy vibrations of the engine, by the crashing of pieces of metal, by the vibration of the wind in the cords of the masts, and by all the noises common to a ship. This in turn excites the middle ear, determining in the semicircular conducts of the internal ear, cerebral repercussions which sometimes reach the spine.

The sense of smell may be more potent than other sense in causing the nervous imbalance. The classical "ship odor", a mixture of oils and fats, stains and varnishes, rubber and tar, together with the confined air of the cabin and the odor of the foods in the dining-room, all conspire to impress with repulsion the pituitary functions. This impression is transmitted to the frontal sinuses and sets into vibration their nervocellular net.

The taste of a healthy individual is altered by the meals on board of the ship. He despises the food and if he tries to force the same into his stomach his mouth becomes dry, a pharyngeal constriction takes place and the undulating movement of the ship provokes the contraction of the muscles of the stomach.

The touch is excited constantly by the continual vibration of the ship. When laying hands on any piece of furniture on board, the roughness of the salt sticking to it produces a special sensation which the epidermis transmits to the receptive organs of balance.

Treatment.—To decide upon an efficient treatment, every case ought to be studied thoroughly. If the sensations responsible for the trouble are received by the sight, the eyes of the patient must be covered with a cloth. This will suffice in many cases.

If the ear is the provoking agent it ought to be isolated from the air by introducing into it a little cotton. By this means many individuals will be able to walk around without any discomfort. As smell is the most rebellious of all senses, it is well to inquire into the possibility of offensive odors. In case the trouble comes through the sense of smell, the nose should be covered with a cloth, or small cotton bullets impregnated with alcohol should be introduced into the nostrils.

The sense of taste is also hard to manage. Ice is a wonderful anesthetic. The slow drinking of ice-water, or the melting of small pieces of ice on the tongue, at short intervals, will produce upon the pharyngeal and esophagic epithelium a sufficient tolerance to food. Cold orange or lemon juice can also be used.

Skin hyperesthesia calls for absolute rest, light coverings, dim light, warm cabin, and no noise. In those cases the whole skin surface vibrates; any contact may precipitate an erection of the papillæ of the dermis (goose-flesh).

The author thinks that when all the means described above fail to give relief, drugs may be tried. The principal drugs for seasickness are hydrochlorate of morphin and sedol (compound of ethylmorphin and scopolamin). Both produce a prolonged hypnose, without agitation, permitting the feeding of the patient, thus avoiding asthenia and syncope. The drugs are given hypodermically.

C. F. ARROYO.

ARNOLD, L.: **Bacillus Influenzae in Normal and Pathologic Throats.**

The Journal of Laboratory and Clinical Medicine, July, 1920, v, No. 10, p. 652.

The author concludes:

(1) *Bacillus influenzae* is present in 35 per cent of normal throats in the vicinity of Nashville, Tenn.

(2) *Bacillus influenzae* was present in 77.7 per cent of "bad colds", acute rhinitis and pharyngitis.

(3) *Bacillus influenzae* was present in 86.5 per cent of the cases in the recent (February, 1920) epidemic of influenza in Nashville, Tenn.

(4) *Bacillus influenzae* in nasal secretions from acute rhinitis directly exposed to the air, are not viable if planted on an artificial culture medium after 10 hours; if they are exposed to light and desiccation is prevented, they are viable for twenty-four hours.

(5) Avery's sodium oleate blood agar plates are a reliable method of isolating the *Bacillus influenzae*.

C. M. ANDERSON.

SANBORN, G. P.: **The Use of the Serum of Convalescents in the Treatment of Influenza-pneumonia; a Summary of the Results in a Series of 101 Cases.** *The Boston Medical and Surgical Journal*, Aug. 5, 1920, clxxxiii, No. 6, p. 171.

The majority of patients of this series were seriously ill, and the fact that half of them had been ill from three to seven days when serum treatment was instituted, and that 17 died within twenty-four hours, suggests that the serum was put to a severe test. The dosage for adults was 100 c. c. (3.38 fluid ounces) and for children 50 c. c. (1.69 fluid ounces). From one to six doses, according to indications, at eight to twenty-four hour intervals, were given to each patient. Those patients only were used as donors who had recovered from an undoubted bronchopneumonia which followed influenza. The technic of obtaining the serum is given.

Of the 67 patients who recovered, 59 required from one or two doses; 7, three; and 1, six. The maximum dosage of serum in a given case in the recovered group was 700 c. c. (23.67 fluid ounces). Of the 34 who died, 17 who received one dose did not live long enough to receive a second. The remaining 17 received from two to four doses and 2 of them received 500 c. c. (16.90 fluid ounces) and 700 c. c. (23.67 fluid ounces) respectively as the total dosage. Reactions were conspicuous by their absence. There were no cutaneous eruptions and there was nothing suggestive of anaphylaxis. There were practically no complications in the recovered cases. Nine cases of pregnancy were present; two deaths resulted. This is a percentage mortality of twenty-eight, much lower than most of the reported figures.

The mortality rate of this series is 33.6 per cent. In a series of 184 cases not treated by serum the mortality was 21 per cent. but

the author maintains that the mortality rate for this series was not a measure of the value of convalescent serum, but was an index of the severity of the disease in the group as a whole. The factors contributing to this high mortality in serum-treated cases compared with controls were several. The serum-treated cases were specially selected because they were severe, while the control cases were the average occurring in private practice.

Seventeen of the 34 patients who died were moribund when seen and died within twenty-four hours. The most important factor is that 28 of the patients who died did not receive serum until their pneumonia had been underway from three to eight days. Convalescent serum seemed to be of most value when it was administered during the first three days of the pneumonia. Its value rapidly decreased when administered after the third day.

The mortality rate follows according to day of treatment.

2nd day.....	10 per cent
3rd day.....	11 per cent
4th day.....	35 per cent
5th day.....	73 per cent
6th day.....	66 per cent
7th day.....	100 per cent
8th day.....	100 per cent

The time factor, that is the period between onset and day of treatment, had a close relation to the mortality rate and seemed largely to determine success or failure.

M. M. BANOWITCH.

THOMAS, H. M., JR., AND PARKER, F., JR.: **Results of Antimortem Lung Punctures in Lobar Pneumonia; Their Bearing on the Mechanism of Crisis.** *Archives of Internal Medicine*, July, 1920, xxvi, No. 1, p. 125.

The authors began studying the results of lung puncture as a check on blood cultures in pneumonia. Some interesting facts were developed which had some bearing on the mechanism of the crisis. The punctures were made immediately over the most intense signs of consolidation. After many experiences with the procedure, the authors were able to state that it is harmless. Punctures performed

at different stages of pneumonia showed that the death of the organism in the lung does not occur in every case at the time of crisis. This leads to the belief that the antibacterial forces may precede at one rate of speed, while the detoxifying mechanism is going on at a different rate. The nature of the toxic substance in lobar pneumonia is imperfectly understood, but the demonstration of toxic split proteins does not finally rule out the possibility of a true toxin-antitoxin reaction. They conclude that the death of the pneumococcus is not the factor which causes or initiates crisis, and that the antibacterial and detoxifying mechanisms act, in a measure, independently.

T. HOWARD.

LAUBER, L.: **Dysentery Epidemic at Mannheim** (Bakteriologische Untersuchungsergebnisse der Mannheimer Ruhrepidemie, Juli bis November, 1917). *Centralblatt für Bakteriologie*, March 15, 1920, I Abt., Orig., Bd. 84, S. 201.

In the dysentery epidemic at Mannheim in 1917, 1183 persons were ill, and there were 153 deaths. The epidemic was traceable to a plague of flies that visited the city that summer. The fact that the epidemic spread from house to house, that the peak of the epidemic came during the height of the fly season, and that dysentery bacilli were actually found on the feet of captured flies, made clear that the flies were responsible for the propagation of the disease.

Dysentery bacilli were found in 42 per cent of the 864 stool cultures made. The Shiga-Kruse type was found in 37 per cent of stools, the Flexner type in the remaining 5 per cent. This high percentage of positive findings was obtained by plating stools as soon as passed; or, when this was impossible, by keeping the stools on ice until they could be cultured. This last proceeding runs counter to the directions usually given for preserving *Bacillus dysenteriae* in stools, as many authors claim that the organism is killed by cold, and some even advise the use of thermos bottles for keeping culture specimens warm during transportation. Lauger, however, found that dysentery soon died out in stools kept at 37° C. (98.6° F.), becoming replaced by *Bacillus proteus*; in the ice box, however, specimens remained positive for dysentery for as much as ten days.

Agglutination tests were positive in 485 of the 833 sera investigated. Later tests on the negative sera would probably have given more positive results. A few sera were negative even though the stool cultures were positive. Out of 79 sera collected after death, 13 were negative in spite of conclusive autopsy findings. The peritoneal fluid from several autopsies gave a higher agglutination titer than did the blood serum.

A. H. EGGERTH.

LOUSTE, A.: **Considerations about the Pathological Physiology, and Pathogenesis of Urticaria** (Considerations sur la Physiologie pathologique et la Pathogenie de l'urticaire). *Paris Medical*, March 6, 1920, No. 10, p. 198.

The classical and characteristic form of urticaria is an edematous and paroxysmic congestion of the dermis, and it is expressed clinically by the appearance on the skin of elevated, shiny, and itchy patches similar to erythema, called *phomphi*. The different forms of urticaria are based upon the intensity, location, morphology, and evolution of the rash. The patients suffering from urticaria are generally predisposed. The etiology of urticaria is multiform. The causes may be external and internal.

External Causes.—There are a certain number of animals and plants that produce urticaria when brought in contact with the skin by introducing into it heterogeneous substance. Why does that happen? Is it hypersensibility, direct toxicity or anaphylaxis? There are different opinions regarding this. At first view, it seems that the condition could not be anaphylaxis because there is no incubation period between the contact and the appearance of the rash. Besides that we must consider that not everybody reacts in the same way. We can suppose that some individuals may have been *prepared*. The anaphylactic sensibility may be hereditary, or the first inoculation may have been overlooked. The limitation of the reaction does not exclude anaphylaxis. Besides this the external causes do not always act exclusively in the place of inoculation. Formerly it was said that the distant reaction was a reflex rash. Generally in those cases we do not have to deal with a reflex phenomenon, but merely with the introduction of the anaphylactic poison into the blood.

Richet and all those who have studied anaphylaxis have found out that not only the albumins produce urticaria, but other substances can produce similar accidents (sodium chlorid, formalin, carbolic acid). The phenomena of urticaria can be accompanied by fever, and general reaction, or they may limit themselves to the point of injection. From the clinical standpoint the most common external cause of urticaria is the injection of serums.

Internal Causes.—It is admitted that most generally the albuminoids enter the system through the digestive apparatus. When studying the alimentary anaphylaxis indicated by Richet we are able to understand the part played by gastric and intestinal dyspepsia, and the liver insufficiency in the proportion of urticaria. It is strange that, although we eat a great amount of albuminoids, generally no person gives signs of anaphylaxis. To explain under which circumstances the albuminoids become dangerous to the organism Richet has proposed the following theories:

(1) The absorption of albumins is completed so quickly that they reach the circulation without having been transformed.

(2) The digestive juices are altered giving rise to a poor gastric or intestinal digestion and in consequence the absorption of untransformed albumin.

(3) The abnormal action of the digestive juices produces some substances that provoke the anaphylactic state.

(4) The blood of certain individuals possesses a certain substance called toxogenin which by combination with the antigen produces anaphylaxis.

(5) A condition of nonimmunity can be admitted. Normally a certain amount of albumin passes into the blood without causing accidents because we are immunized. When this immunity is lacking, the accidents happen.

Anaphylaxis can also be produced by the injection of medicaments. These may act in two ways, either essentially by themselves, or by causing digestive troubles which prepare the soil for the appearance of urticaria or anaphylaxis.

The following observations are classical:

Laudmann's Observation.—A man thirty-five years old presents an idiosyncrasy against albumin. A most negligible trace of an egg, i. e. a clarified jelly, was sufficient to provoke intense urticaria with serious symptoms recalling those of empoisonment.

Lesné's Observation.—An overfed girl eight years old took an egg every day during a long time. She presented dyspepsia, and a short time later symptoms of empoisonment.

Schofield's Observation.—A child thirteen years old presented skin and mucosa urticaria, asthma, and convulsions, as soon as she ingested eggs even in a very small quantity.

Observation of Flandin and Tzanck.—A man twenty-six years of age presented an intense malaise feeling with dizziness and dyspnea, twelve hours after he ate the second helping of clams. Next day he presented general urticaria. With the serum of this patient the test of passive anaphylaxis was done in the guinea pig.

Infectious Diseases.—In certain infectious diseases such as acute joint rheumatism, diphtheria, all septicemias, etc., urticaria appears as a secondary manifestation and remains in the background. In malaria it frequently takes a special character. It can appear during the access or between two accesses. Abrami and Senevet studying the pathogenesis of malaria, proved that shortly before the chill a real anaphylactic shock occurred in the blood of their patient; this was due to the blasting of the mesocytes which set free some heterogeneous albuminoids. These studies open a new view regarding the pathogenesis of urticaria in infectious diseases.

Toxic Causes.—The history of toxic urticaria is found in the echinococcus cyst. Finsen reports that urticaria was first observed after the breaking up of a cyst into the peritoneum or into the pleura. Later on the appearance of a rash was reported after the simple puncture of a cyst. Davanie compares the toxic action of an echinococcus cyst to that of the clams and oysters. Chauffard was able to provoke a typical anaphylaxis by injecting the liquid of a cyst.

The author makes a study of the alterations observed in the vascular and nervous systems.

Vascular Modifications.—These are expressed by the urticarial patch. The opinion of the authors was varied regarding the mechanism. Richet, Lassabliere, and Widal, and their pupils have proven that besides general hypotension there was leukopenia followed by leukocytosis; the blood clotting was altered and the number of circulating hematoblasts was diminished. All these alterations induce a special condition that has been called peptonic shock, anaphylactic shock, or hemoclastic crisis.

The Nervous System.—Richet, and the authors partaking his opinions have proven that the anaphylaxis symptoms were essentially dependent upon an acute intoxication of the nervous system, beginning with a vascular hypotension with itching, urticaria, etc., until the stage of serious accidents, psychic blindness, coma, and sometimes death was reached. Itching and edema of the mucous membranes and of the skin seem to correspond to a light form of anaphylaxis.

Pathogenesis.—From all conditions which precede, it is plain that urticaria is the expression of anaphylactic troubles. Three leading theories have been proposed to explain anaphylaxis. They follow:

Chemical Theory of Richet.—This author admits that the injection of an antigen determines the formation in the organism of a substance which he calls toxogenin. This substance is not toxic *per se*, but when the same antigen is injected anew, it forms with toxogenin a toxic combination which he calls apotoxin.

Biological Theory of Friedberger.—In 1905 Marfan had already proposed this theory which Friedberger proved experimentally. He mixed serum and antigen, and obtained a precipitin. He dissolved it, precipitated it again, obtained a toxic substance. This theory was fought on the ground that individuals whose blood is rich in precipitins do not present anaphylaxis, while those who present it easily lack precipitins completely.

Physical Theory.—Besredka affirms that the phenomena of anaphylaxis are nothing else but the actions produced by such precipitation and absorption as rule the relations of the colloids among themselves. His experiments prove that the *anaphylactic shock can be provoked by a series of intoxications among which the peptonic intoxication may be the most common, but not the only one*. Bordet admits that the anaphylactic poison resides in the serum itself. Normally it would be attached to an antagonistic substance. The substances which would produce anaphylaxis destroy this attachment, and absorb or destroy also the antagonistic substance. In this way it may be explained that no matter which antigen was used, intoxication would be produced as the result of a humoral decomposition.

The advantage and the interest of the physical theory is to explain by a single mechanism several symptoms of similar nature although of different etiology. The chemical theory is in accord with the experiments *in vitro*. The physical concords with the experimental and pathologic facts described above.

The special physio-pathetic and pathogenic action of urticaria calls for a new therapeutic orientation. It is not necessary to neglect the prophylactic and symptomatic treatment of urticaria, but it is absolutely necessary to complete them with a pathogenic treatment.

Prophylactic Treatment.—Avoid in every case such external agents as may provoke urticaria. Suppress all medicines and foods which produce anaphylaxis. In some cases a strict hydric diet has to be followed. Lesné and Dreyfus have shown experimentally that the sensibilized animals did not present any manifestation when they were put on hydric diet before the dangerous substance was injected.

Symptomatic Treatment.—The nervous shock has to be treated by the injection of camphorated oil, ether, or adrenalin. There should be local inunctions of antiitch powders, isolated under cotton dressing, the exclusion of air by a rubber sheet, etc.

Pathogenic Treatment.—Such treatment tends to correct the predisposition by modifying the humoral condition as well as the gastro-intestinal condition in the digestive cases. Anaphylaxis and immunity do not seem to possess a different pathogenesis. Richet thinks that anaphylaxis sometimes hides the immunity and that it may be the first stage of the latter. The work of Besredka concords with this opinion. The anaphylaxis provoked by the injection of sera intraspinally may be avoided, if a minimal dose of the serum is previously given by vein, hypodermically, and even by the rectum.

Siecard has shown some interesting facts. By completely blocking the circulation of an arm he was able to inject the therapeutic dose of a serum into that arm, and after a few minutes he allowed the circulation to pass into the system without producing anaphylaxis. In the cases of milk anaphylaxis Schlossmann has indicated the injection of minimal, and increasing doses of ox serum (0.10 to 1 gram [1.543 to 15.43 grains]). Finckelstein treats such cases by administering by mouth minimal doses of milk every day, starting with 2 or 3 drops until several c. c. can be mixed with the other foods. He has obtained remarkable results. Schofield and Lesné used a similar technic against egg anaphylaxis.

Pagniez, Pasteur and Valléry-Radot have used a rapid method with good results. Their patient had intolerance against all kinds of albumin, but he could eat everything without any danger if he took

0.50 gram (7.716 grains) of peptone an hour before every meal.

Heron and Saint Girons were able to treat a case of malarial that showed idiosyncrasy against quinin, by giving before the treatment 5 mgs. (.077 grain) of quinin, and 50 cgs. (7.715 grains) of sodium bicarbonate. In 1916 Weill reported from Lyon a case of chronic urticaria successfully treated with sodium nucleinate. In 1915 he cured a case of rebellious urticaria with 6 intravenous injections of 15 c. c. (4.06 fluidrams) of the serum of the patient's brother. This fact shows the importance of a pathogenic treatment.

The author considers urticaria as part of a great general syndrome in which the skin trouble plays only a secondary part.

C. F. ARROYO.

RETZLAFF, K.: **Hirschsprung's Disease** (Hirschsprung'schen Krankheit). *Berliner klinische Wochenschrift*, April 5, 1920, No. 14, p. 319.

In 1886 Hirschsprung described this disease as a congenital developmental anomaly, or a fetal malformation. Later observers considered the disease as of mechanical origin arising from a fecal stagnation and a dilatation of the bowel followed by a secondary hypertrophy of the walls of the colon. Marfan found an abnormal length and looping of the sigmoid with a torsion which produced a mechanical obstipation resulting in dilatation and a hypertrophy of the bowel. Cancetto attributed the condition to a congenital aplasia of the musculature of the terminal portion of the colon. De Jong and Muskens have found anomalies of the transverse folds which obstruct the lumen of the rectum. Petrivalsky found a hypoplasia of the elastic elements and a hyperplasia of the connective tissues which permitted stasis and dilatation. Fenwick thought that a spasm of the sphincters was a causal factor. Bing considered it a hypotonus of the colonic musculature.

The author reports a case of his own. A forty-six-year old janitor was admitted to his service with a history of a progressive constipation since childhood. Lately even *larga enemata* were ineffectual, and the patient, in desperation, sought surgical measures for relief of his symptoms. He presented himself at the clinic with a prominent and distended abdomen, particularly on the left side.

His diaphragm was high on that side. The patient was given a barium enema of seven liters. A radiograph was taken, and none of the barium had entered the transverse colon. It produced a shadow in the lower left quadrant about 20 cm. in width and 28 cm. in length.

The case was then studied from a functional standpoint. From physiological studies of the innervation of the intestine the functions of the vegetative nervous system were investigated. The patient did not respond to the bulbo-cardiac test of Aschner, the vagal pressure test of Czermak, or the squatting test of Erben.

In none of these tests was there a slowing of the pulse. The patient was not therefore under the domination of the vagus. He then received an injection of 1 mg. of adrenalin. Five minutes later his systolic pressure had risen from 110 to 210 and the diastolic from 70 to 95. The pulse-rate rose from 64 before the experiment to 90, in five minutes; his leukocytes from 5,870 to 18,750 with a relative lymphocytosis. The reaction persisted for about fifty minutes until the normal blood-pressure and pulse-rate were reached. Subjectively the experiment was accompanied by marked pallor, chilliness, trembling, substernal oppression and fullness of the head. The injection was repeated a few days later with similar results.

Injections of 0.01 gram (.166 grain) physostigmin salicylate were then given. There was no appreciable change in the blood-pressure, pulse-rate or subjective symptoms. The same applied to injections of 0.002 gram (.0313 grain) of atropin sulphate. There was no change in the blood picture.

The Löwi adrenalin pupillary test was applied with a marked mydriasis. These tests showed conclusively an increased tonus of the sympathetic system. It is known that this nerve is the inhibitor of the intestinal movements and also diminishes the tone of the intestinal musculature. The tests also showed a vagasthenia from lack of response to pilocarpin.

The patient was operated upon at his own request and a dilated hypertrophied sigmoid was removed. There was no mechanical obstruction, and the diagnosis of a functional dilated sigmoid was substantiated. There were no changes found in the myenteric plexuses of Auerbach and Meissner. The patient died a few days after the operation from a peritonitis. The author concludes from

the findings in this case that a functional disturbance of the vegetative nervous system is a factor in the production of Hirschsprung's disease.

H. JOACHIM.

GIFFORD, S. R.: **Notes on the Fusiform Bacilli of Vincent's Angina.** *Journal of Bacteriology*, 1920, v, 365-371.

The examinations were made in 24 cases of trench mouth disease. In 17 cases the fusiform bacilli were more numerous than spirilla. The fusiform bacilli of Vincent's angina show much greater variation in their gram-staining properties than ordinary organisms. When there were any number of bacilli present, some of them were gram-positive and some gram-negative, with a few gram-positive granules in them. These gram-positive granules were a constant finding and seem to have as much significance as the polar bodies in *Mycobacterium diphtheriæ*. There was a slight predominance of gram-positive organisms but not enough upon which to base any conclusions. The method of staining was carefully controlled so that the difference in staining reactions is not due to the method. The author was not able to cultivate the bacilli. He found an organism resembling the fusiform bacilli of Vincent's angina as the predominant organism in a postmortem on a case of bronchopneumonia. He has also found an organism like Vincent's angina,—one in a smear from an ulcer surrounding the lower caniculus; another in cultures from pus of a unilateral chalazosis in which both sides were involved, having somehow invaded the conjunctival sac and meibomian glands.

F. HULTON-FRANKEL.

SHEA, J. J.: **Vincent's Disease.** *Southern Medical Journal*, July, 1920, xiii, p. 525.

"Vincent's disease", says the author, "has increased from a condition sporadically met with to one that has to be considered in every case of acute infection of the throat and gums." His experience with this disease was obtained from the epidemic of trench mouth among the troops stationed in Paris during the winter months of 1918-1919.

Etiology.—The disease is due to an infection with the fusiform bacillus and Vincent's spirillum. The organisms being of an anerobic nature, a recess from exposure to air is necessary for their growth and activity. The tonsils afford an abundance of such places in the crypts. A previous history of a tonsillar infection appeared to have no bearing in the author's series of cases. But a pyorrhea past or present, did influence the liability of gingival involvement. The disease is transmitted by kissing, by incomplete washing of dishes or the use of public utensils.

Clinical History.—The majority of the cases seen by Shea were of the mild type. The average case was admitted as an acute tonsillitis and presented fever, malaise and painful swallowing. If the case was not treated specifically, the ulceration increased, the breath became foul, the cervical and submaxillary glands enlarged, but the pain on swallowing did not increase in the same proportion. Under treatment the subjective symptoms clear up rapidly, while the objective signs remain. After the first cauterization the painful swallowing is relieved, but it takes six or seven days for the membrane to disappear. Cases with large fistulous tracts under the anterior pillar and out into the peritonsillar region are readily relieved after the abscess has been cleansed, and the opening enlarged. Even with a large abscess cavity the subjective symptoms are less than one would expect with so much pathology. Patients with gingivitis only, complain of a metallic taste and tender bleeding gums. In the severe cases especially among luetics taking mercury, the ulceration spreads very rapidly and extensively. The laryngeal cases run the course of a chronic laryngitis; the bronchial cases have a very productive cough.

Diagnosis.—Acute Vincent's disease must be differentiated from diphtheria, mucous patches, stomatitis, and acute pyogenic infections of the mouth and pharynx. Chronic Vincent's simulates granuloma and must be differentiated from lues and tuberculosis. The disease does not interfere with the Wassermann reaction. A positive smear for the organism is the only decisive proof of the condition.

Treatment.—The ulcerations must be thoroughly cleansed with peroxid, soda or plain cotton swabs, after which they must be cauterized. It is essential that the solution used for cauterization reaches under the overlying edge of the ulcer, and into all its recesses. A mouth wash consisting of Fowler's solution and wine of ipecac used every two hours, alternated with one of Dakin's solution, is good.

After the first treatment, a glycern solution of arsphenamin is substituted for the cauterization. The teeth must be cleansed after each meal, and with a second tooth brush the above mouth wash must be applied in full strength to the gums. Arsphenamin, 0.3 gram (4.63 grains), intravenously, for three doses will hasten the healing of the disease.

M. KESCHNER.

BULKLEY, L. D.: **On the Cure of Cancer.** *Medical Record*, June 5, 1920, xcvi, p. 941.

From his interpretation of the literature as well as on the basis of his own experience in the treatment of cancer, Bulkley believes that he is justified in advancing the following conclusions:

(1) Cancer is *not* a fearful something of unknown origin, which attacks one person or another, without reason, as the laity suppose.

(2) Cancer is but a deviation from the normal growth of previously normal body cells, which, for some reason, not yet fully determined, take on an abnormal method of growth, and having once begun, they continue a wild and destructive career, invading other organs and ultimately causing the death of the patient, unless the process is checked in some manner.

(3) Cancer has been investigated more than any other disease, for the purpose of ascertaining its real cause, but as yet there is no unanimity of opinion concerning it.

(4) Most of the laboratory work has been done on the microscopical study of the tissues, and experimentation on lower animals, principally rats and mice, as also on the morphology of the blood, but not on its plasma, and with relatively little clinical investigation.

(5) No one has yet seen the very beginning of cancer in internal organs, although microscopical studies of epithelioma of the skin have taught much as to the earlier changes in the cells about to become cancer-genetic; this relates especially to centrosomes and chromosomes in the nuclei which control the nutrition and activity of the cells.

(6) It has been claimed that cancer is due to certain misplaced epithelial cells, or "embryonic rests" of antenatal origin, but these are

found to be of common occurrence in every one, and no explanation has been offered why some and not all of them take on morbid action, or why this should be postponed until later periods of life.

(7) Supported mainly by the results of laboratory investigations, surgeons have striven with increased zeal to cure cancer simply by the expiration of the diseased mass and surrounding structures, and as the wounds generally heal well they have in times past claimed that cancer was thereby cured.

(8) The very frequent return of the disease in the same locality or elsewhere in one, two, three, five, ten or fifteen years, has taught many surgeons the futility of this hope. Moreover, the steady increase of nearly 30 per cent in the mortality of cancer since 1900 with the present acknowledged death rate of 90 per cent of those once attacked, has convinced many that surgery is a failure in its attempts to cure cancer.

(9) During the past hundred years many prominent physicians and surgeons have remarked casually that there must be some underlying cause which brings about a recurrence of the disease, and many have suggested that it is probably due to the diet or mode of life of the persons affected. But these remarks seemed to have been overlooked by the medical profession, and certainly they were not acted upon, for the glamour of surgery appears to have blinded the eyes of the profession and laity. As a matter of fact until recently little if any attention has been paid to the medical features and therapeutics of cancer.

(10) Careful clinical observations of patients with early and late cancer have shown constantly so many deviations from normal in them, and in their secretions and excretions, pointing to deranged metabolism, that the conclusion seems clear that these are connected with the genesis and continuance of the cellular disturbance which we call cancer. This is confirmed by their disappearance as the disease recedes under proper dietary, hygienic and medicinal treatment.

(11) Statistics have shown that the existence and death rate of cancer have definitely increased with the rapid increase of so-called modern civilization in all parts of the world. Aborigines, and people who live largely on rice or vegetarian products, have been shown to be almost free from cancer. But as these same individuals mingle with foreigners and adopt their customs of eating and living, their tendency to become afflicted with cancer increases to a great degree.

(12) Cancer has increased coincidently with the increased consumption of animal proteids, coffee and alcohol, together with indolence and luxurious habits in general. Of late years attention has also been called to the effect of salt in the production of cancer, and to the absence of potassium in much of the food as a very important feature.

(13) Careful laboratory experiments on animals have demonstrated a remarkable influence of certain foods in inhibiting the growth of inoculated cancer.

(14) Long experience has shown that an absolutely vegetarian diet, with the total exclusion of animal proteids, has a great influence in the arrest of cancerous development, and in the removal of lesions already formed.

(15) Experience has also shown that proper medication and hygiene, directed to the restoration of a perfect metabolism and of a healthy blood stream, continued for a sufficiently long time together with a correct diet, can and does remove the disease by reaching its cause.

True cancer is not purely a local disease, cured by the knife, caustics, x-ray or radium; these remove only the *local product* of a long-existing constitutional error, while the internal cause continues in operation, ever ready to produce new lesions and to ultimately destroy life. How long this constitutional error has existed and has been operative it is impossible to tell.

The lesion of cancer undoubtedly begins in a cell or group of cells, which multiply erroneously and seem to have the power to induce other cells to join them in their malignant action. Those diseased cells like all other cells of the body, produce a hormone, which, as has been proven by experiments on animals, has a poisonous action.

As the cancerous process goes on, the already erroneous blood stream, excited as we know by all hormones from healthy cells, is further disturbed by this poisonous hormone, and the blood-cells and their hemoglobin are altered; this produces a pernicious anemia giving rise to the well-known cachexia of carcinosis; if this is not checked, it will end in death. "Thus", says Bulkley, "we see that the pathological history of carcinoma is not mysterious, but that it is more or less akin to what we know of the pathology of other diseases."

M. KESCHNER.

ROGERS, SIR L.: **Further Work on Antimony Intravenously in Filariasis.** *British Medical Journal*, May 1, 1920, No. 3096, p. 596.

A 2 per cent solution of sodium antimonial tartrate was injected intravenously, the doses for the first six days being as follows: 3, 4, 4.5, 5, 5.5 c. c. (48.6, 64.8, 72.8 minims, 1.35, 1.455 fluidrams). After this time as symptoms of toxicity developed, the last dose was repeated every other day. Medication was continued for six weeks, with an average total dose per individual of about 2 grams (30.86 grains) of the drug. The progress of treatment was determined by counting the number of filaria embryos in the blood, a decrease being noted as favorable. However, counts made on untreated controls showed a marked daily variation in the number of embryos in the blood stream. It was noted that the drug caused a definite decrease of the embryos and in some cases complete disappearance from the peripheral blood stream which persisted several months after the treatment was stopped. Also clinically favorable results were obtained by this treatment in cases of filarial fever, and elephantiasis. A long course of injections is necessary to produce this effect.

L. C. JOHNSON.

RAW, N.: **An Attenuated Tubercle Vaccine.** *British Medical Journal*, April 17, 1920, No. 3094.

Human and bovine types of tubercle bacilli have never been recovered from the same patient. After treating 3000 cases of tuberculosis the conclusion is made that human infections should be treated with bovine tuberculin, and bovine infections, with human tuberculin. The tuberculin should be prepared fresh from attenuated and nonvirulent culture of bacilli. The author used cultures which he had grown and subcultured every month since 1905. Injections should be given in graduated and increasing doses, without acute reactions, and at least twelve should be given; some cases require a great many more. The most favorable cases for treatment are local lesions, but early cases of pulmonary tuberculosis may be limited, and a further spread to other parts of the lung prevented.

L. C. JOHNSON.

SECTION ON LABORATORY AND RESEARCH

MELLON, R. R.: **Life Cycles of the Bacteria and their Possible Relation to Pathology.** *The American Journal of the Medical Sciences*, 1920, clix, 874.

The author attempts a preliminary integration of the more significant studies made in this subject, with allusions to their possible bearing upon some of the unsolved problems of present-day pathology and bacteriology. Hort showed that in meningitis the cerebrospinal fluid contains a filterable virus which, in the fresh state, will initiate a continuous fever in monkeys when it does not actually cause death; but inoculation of this filtrate will then yield the meningococcus, in addition to other forms encountered in this disease. These results suggest to him that the virus and the meningococcus are phases in the life-cycle of one organism. He has also shown that certain members of the colon-typhoid-dysentery group reproduce themselves in other ways than by simple binary fission and that the life-cycle includes in some cases an invisible phase. From the morphological side, Lohnis states that all bacteria alternate in an organized and in an amorphous stage, from which stage "regenerative units" develop, and, increasing in size, turn into "regenerative bodies" which later become cells of normal shape. Ferran concluded that the tubercle bacillus includes in its life-history three distinct stages: The first stage includes the alpha bacillus which is non-acid-fast; the second stage is represented by the non-acid-fast gram-positive granules of Much; and the third stage is the tubercle bacillus as ordinarily considered. Mellon studied the so-called *Bacillus Hodgkini* and related diphtheroid strains. He found remarkable morphological and biological changes in these, with long filamentous forms and in some cases even a single large giant coccus. In a case

of streptothricosis a filterable form was present in the blood, which, when cultivated grew as a diplococcus, and later changed to the filamentous or branching form. He regards these separate entities as stages in the life-history of a single organism. Browne has recently described a chromogenic spirillum that lived and reproduced itself as a coccoid under altered conditions.

The striking remissions of pernicious anemia, the Pel Ebstein febrile complex in Hodgkin's disease and other such changes might well be correlated with alternate "resting stages" and stages of activity in the life-history of the organisms involved. If there exist stages of bacterial life, there must occur a revaluation of the term "secondary invader", as the latter may have a definite stage relationship with the primary exciting bacterial cause.

M. H. KAHN.

ARNOLD, L.: **Classification of Streptococcus. I. Streptococci Isolated from Normal Throats. II. Streptococci Isolated from Influenza Throats. Classification by Sugar Fermentation.** *The Journal of Laboratory and Clinical Medicine*, June, 1920, No. 9, pp. 587 and 591.

I.—A great deal of work here cited has been done during the recent epidemic of influenza, and many observations were made at different Army Camps where an unusually large number of young healthy men were associated. There has been work done since this from time to time in civilian life. Even under these varied conditions where standard technic was used it has been found that hemolytic streptococci were present in close to 50 per cent of the average normal throats examined; the variations were not much more than 10 per cent above or below this general average.

Walker and Adkinson show a classification by sugar reactions of strains of hemolytic and nonhemolytic streptococci isolated from bronchial asthmatics. Their results run closer to those here recorded than any other observation found by the author in the literature on the subject. With rigid exclusion of tonsil and teeth infections, the author thinks that the stains isolated represent a fair average of the types of hemolytic and nonhemolytic streptococci present in the normal throats in this vicinity (Nashville, Tenn.). The author's

results showed that in one hundred and thirty-four average throats, 50.74 per cent were carriers of hemolytic streptococci and 91 per cent were carriers of nonhemolytic streptococci. One hundred and seventeen strains of hemolytic and eighty-seven strains of nonhemolytic were classified by Holman's classification.

II. The percentage of hemolytic streptococci (50.74 per cent) in normal throats recorded during October, November, and December, 1919, and the percentage (48.2 per cent) found during the recurrent epidemic of influenza do not show much difference. The types as classified by sugar fermentation run very close together in the two series. A postepidemic series is now being run in this laboratory, and the types so far observed run close to the preëpidemic and epidemic strains already recorded. The same comparison holds for the nonhemolytic streptococci. There certainly were not present in the throats of patients suffering from an attack of influenza in February, 1920, in Nashville, streptococci of the hemolytic or nonhemolytic types that differed from strains isolated and studied by the fermentation tests from normal throats during a period three months prior to the epidemic.

C. M. ANDERSON.

NOGUCHI, H.: **Etiology of Yellow Fever. Serum Treatment of Animals Infected with *Leptospira Icteroides*.** *The Journal of Experimental Medicine*, Oct. 1, 1920, xxxii, No. 4, p. 150.

The work of the author demonstrates a most interesting contrast between chemotherapy, as carried on by salvarsan and neosalvarsan, and serotherapy as carried on with immune serum.

Several series of guinea pigs were infected with *Leptospira icteroides* of varying degrees of virulence. In some the dose given was near the single lethal dose; in others the dose was subminimum; while others were injected with at least 59 minimum lethal doses of a culture and a highly virulent organ emulsion from a guinea pig. The animals were all inoculated intraperitoneally, and within 30 minutes thereafter they were injected subcutaneously each with a different amount of salvarsan or neosalvarsan.

There were more recoveries among the treated pigs than among the controls, but the author observed no mitigation of the severity of

the infection; on the contrary he observed that in pigs that received from .05 mg. to .1 mg. (.00077 to .00153 grain) death occurred one or two days earlier than it did in controls. This finding suggests a possible injury to the kidneys giving the *Leptospira* easier access to this organ.

The above two drugs were found highly destructive to *Leptospira* in a concentration of 1:200,000.

The blood-serum from rabbits which received 0.05 gm. (.00077 gram) salvarsan or neosalvarsan one hour before bleeding proved to be poisonous to the *Leptospira*, killing all the organisms within forty-eight hours. Normal rabbit serum exerts no such action, but on the contrary permits of the rapid growth of the organisms. The slow action of the salvarsan in the blood makes obvious the fact that these drugs do not have time to exert their beneficial effect upon such a rapid and progressive infection as yellow fever.

Serotherapy.—Antiicteroides immune serum from the horse in a dose of 1 c. c. (16 minims) of a 1:10,000 dilution protected guinea pigs from an infection of 5,000 minimum doses of icteroides when injected simultaneously, but failed to exert any injurious effect upon the organisms *in vitro* in a concentration lower than 1:2000. Rapid disintegration occurred at 1:20 and almost complete agglutination and disintegration occurred at 1:200.

H. M. FEINBLATT.

JACKSON, D. E., AND RAAP, G.: **An Experimental Investigation of Certain Features of the Pharmacological Action of Salvarsan.** *The Journal of Laboratory and Clinical Medicine*, Oct., 1920, vi, No. 1, p. 1.

The authors give their experimental data from the use of salvarsan on dogs. They state that in the present work they have carried out some preliminary experiments in order to determine whether or not any true bronchial asthmatic action is produced by injections of arsphenamin.

They conclude:

(1) First-class preparations of salvarsan have almost no direct action on the bronchial musculature of the dog. It seems obvious that acute symptoms resembling anaphylactic shock, or the so-called

"nitritoid crises", if produced by good preparations of salvarsan cannot be due to a spasmodic contraction of the bronchioles. But we are not sure that this action might not occur in the case of especially toxic samples of the drug.

(2) They have studied the action of salvarsan on the pulmonary pressure by means of an especially sensitive method. They believe that even the smallest injections of salvarsan exercise some immediate action on the pulmonary pressure. Its detection depends only upon the sensitivity of the method which is employed for its investigation.

(3) When the pulmonary pressure has been greatly raised by salvarsan, they noted that injections of adrenalin tended to lower this pressure, and also to restore the excursions of the pulmonary pressure due to the respiratory movements of the lungs, when these had been previously greatly reduced by the salvarsan. They believe this results mainly from a mechanical shifting of the blood from the action of the adrenalin on the systemic vasculature.

(4) When solutions of salvarsan are injected into the general circulation by way of the femoral artery, the pulmonary blood-pressure is still raised by the drug. But the rise in pressure is less than if the drug were injected by the femoral vein.

(5) When solutions of salvarsan are injected into the portal vein and are thus carried through the liver before passing into the general circulation, then it is found that the drug produces but little if any effect on pulmonary pressure, although if the dosage is very large the pulmonary pressure may be raised slightly, apparently only as the result of an increased volume of fluid in the vessels. But toxic doses thus injected tend to lower the pulmonary pressure in nearly every case.

(6) They believe this action of the liver is brought about by a precipitation of the drug in the capillaries and arterioles of the liver. This apparently does not correspond to the ordinary detoxicating action of the liver as manifested on many poisons.

(7) This precipitation in the liver takes place quickly and it does not prevent some portion of the drug from passing on into the general circulation. For the systemic pressure may fall to a proportionately much greater degree than does the pulmonary pressure.

C. M. ANDERSON.

HUNTER, A. C.: **Bacterial Decomposition of Salmon.** *Journal of Bacteriology*, 1920, v, 353-361.

The fish were studied and a thermal curve kept of the temperature of the container in which they were stored. It was found that all the muscles of freshly caught salmon are sterile. After the fish had been kept at a temperature varying from 50° to 70° F. (10° to 21.5° C.) for ninety-six hours, the bacterial counts were very high and the tissue was decomposed. By washing the fish in running water when they were received on the docks it was found that the fish decomposed less rapidly. Although the intestinal organs are sterile, the tissue becomes infected after ninety-six hours through the blood. If the salmon is out of the water more than forty-eight hours and not kept at a temperature lower than 50° to 70° F. (10° to 21.5° C.) it is unfit for food.

F. HULTON-FRANKEL.

SANDIFORD, I.: **The Basal Metabolic Rate in Exophthalmic Goiter with a Brief Description of the Technic Used at the Mayo Clinic.** *Endocrinology*, Jan. to March, 1920, iv, No. 1, p. 71.

By basal metabolic rate is meant the minimal heat production of an organism at complete muscular rest, determined from twelve to eighteen hours after the ingestion of food. After a fast of at least twelve hours the patient lies at rest for twenty minutes, during which time pulse- and blood-pressure are noted. A mask is then adjusted tightly over the mouth and nose. With absolute quiet the patient breathes for a period into a gasometer, the observer sitting with him and noting the pulse and respiratory rates, and any movement that may be made. The total volume of air is thus collected over a known period of time. The oxygen and carbon dioxide per cents of the expired air are determined by the Haldane method. The calculation of the basal metabolic rate from these data is simple and is expressed in percentages of the normal, those greater being expressed as plus, and those less than normal as minus. This determination is of the greatest importance in thyroid disorders, since it gives a very accurate index of the degree of functional activity of the thyroid gland. In hyperthyroidism the basal metabolic rate may be over

100 per cent above normal, while in cases of thyroid insufficiency it may be 40 per cent below normal. It serves as a very efficient differential diagnostic point in neuroses which simulate hyperthyroidism.

The effect of treatment in 22 cases of severe hyperthyroidism is nicely illustrated as follows:

	<i>Average Basal Average pulse Metabolic Rate</i>	
Before treatment	123	Plus 66%
After 2 ligations and rest in bed	115	Plus 46%
After 3 months rest at home	107	Plus 39%
At discharge after thyroidectomy	89	Plus 16%

If the basal metabolic rate remains high a second or even a third resection of gland is indicated.

L. C. JOHNSON.

GOTO, S.: *Dissotrema* Synonymous with *Gyiliauchen*. *The Journal of Parasitology*, 1919, vi, 44.

Dissotrema Papillatus, first described as a distinct genus, is on further investigation placed as a species in the genus *Gyiliauchen*, because of its close resemblance to *Gyiliauchen tacharodes*, the intestinal parasite of the pilot fish. Further observations seem to indicate that this genus may be an intermediate group between the Paramphistomatidæ and some of the aberrant distomes.

L. H. GREGORY.

TOGAWA, T.: *Studies in Metabolic Changes in Experimental Tetany*. *The Journal of Laboratory and Clinical Medicine*, Feb., 1920, v, No. 5, p. 299.

In his study of parathyroidectomized and thyroidectomized dogs, the author drew the following conclusions in relation to the carbon-dioxid-combining power of blood-plasma, the antitryptic and the nonprotein-nitrogen content of the serum.

In parathyroidectomized dogs, showing typical tetanic symptoms, an acidosis condition is always observed. The antitryptic power and

the nonprotein-nitrogen content of the blood-serum are usually increased. In thyroidectomized dogs, showing no tetanic symptoms, an acidosis condition is never observed, but a slight alkalosis condition, on the contrary, is sometimes induced. In the latter condition the antitryptic power and the nonprotein-nitrogen content of the blood-serum remain almost unchanged.

C. M. ANDERSON.

FINDLAY, L., AND SHARPE, J. S.: **Adult Tetany and Methylguanidin. A Metabolic Study.** *Quarterly Journal of Medicine*, July, 1920, xiii, No. 52, p. 433.

Noël, Paton and Findlay believe that the symptoms in infantile tetany and tetany parathyreopriva are due to an increased production of guanidin as a result of altered metabolism. The metabolic study carried out on this case of adult tetany led to the following conclusions:

1. There was an increased excretion of guanidin by the urine, just as in the case of infantile tetany and tetany parathyreopriva, but in this case it was chiefly in the form of dimethylguanidin.
2. There was a subnormal retention of calcium.
3. There was a diminished absorption of fat, a point previously observed in infantile tetany.
4. There was no deficiency in fat splitting and thus no impairment of the pancreatic function.

C. F. NICHOLS.

NISHIDA, Y., AND PETROFF, S. A.: **Serological Studies on Tuberculosis.** Abstract *American Review of Tuberculosis*, July, 1920, iv, No. 5, p. 322.

The phenomenon of antibody formation is not at all limited to bacteria or bacterial derivatives like toxins, etc., and it cannot be looked upon as merely a complex mechanism existing for the primary purpose of protecting the body against infectious disease. It can be demonstrated where any form of protein is injected into the animal body.

In discussing the nature of antibody-antigen reactions we are very much hampered by the fact that antibodies have never been isolated in the pure state. In a reaction like complement fixation, we naturally observe the effects brought about by the interrelation of certain components in a highly complex and inseparable mixture. There is no question but that the reacting component appears to be colloidal or else to be one markedly influenced by a class associated with such substances.

In the development of the antibodies in sheep serum the experiments were carried out with living and dead organisms (tubercle bacilli) by intravenous injection and the conclusions were that the ideal organism for obtaining a high titre of antibodies is one not altered by chemicals or heat, but one that is living and virulent, and Sanborn is quoted in corroboration; his experience led him to the same result.

The study included:

- (1) The effect of heat on antibodies.
- (2) The diffusibility of the antibodies.
- (3) The effect of *x*-ray radiation.
- (4) The effect of direct sunlight on antibodies.
- (5) The chemical nature of antibodies.
- (6) The globulin nature of antibodies.

In reference to the globulin nature of antibodies the conclusion was that the antibodies are either a part of the globulins or that they are carried down with the globulins, and it was also noted that there is some relation between the titre of the globulins and the strength of the complement-fixing reaction.

Summary and Conclusions.—(1) Sensitized animal serum having a high titre of antibodies was studied. It was obtained by inoculation of sheep intravenously with human tubercle bacilli. The titre was 0.0001 c. c.

(2) Dead tubercle bacilli or products of tubercle bacilli do not produce as high a titre of antibodies as the living organisms.

(3) Complement-fixing antibodies resist heat better than the antibodies responsible for the Wassermann reaction. A temperature of 60° C. (140° F.) will not destroy the tuberculous complement-fixing antibodies obtained in experimental animals.

(4) *X*-ray radiation, when a full erythema-producing dose is given, does not destroy the antigen, antibody, or complement.

(5) Ultraviolet rays destroy the antibody and complement, but not the antigen.

(6) Sunlight at 1600 feet elevation has slight effect on antibodies, more on complement and least on antigen.

(7) Complement-fixing antibodies are colloids.

(8) They are not lipins, but are either globulins or are absorbed by them.

(9) The precipitins and complement-fixation have been studied parallel with each other. The two antibodies responsible for the two different reactions are probably the same, but represent two distinct phases of one and the same phenomenon.

C. A. SCHMID.

BUSMAN, G. J.: **Rubber Tubing as a Factor in Reaction to the Blood Transfusion.** *The Journal of Laboratory and Clinical Medicine*, August, 1920, v, No. 11, p. 693.

The author summarizes as follows:

(1) The brand of supposedly pure gum rubber tubing which in preliminary experiments by Stokes and Busman produced reaction in arsphenamin administration is apparently able, when new, to produce reaction if used in blood transfusion work.

(2) The toxic substance is taken up in sufficient amounts to produce reaction in patients receiving transfusions of citrated blood through 80 cm. of new rubber tubing of 4 mm. internal diameter.

(3) Enough of the toxic agent is taken up by 250 c. c. of normal uncitrated blood drawn through as little as 35 cm. of new tubing (internal diameter of 4 mm.) enroute from the vein to the container of citrate solution, to produce marked reaction when given through old tubing. It is not, therefore, necessary that whole blood be citrated to absorb the toxic principle.

(4) The mechanically removable debris from the inside of new sterilized tubing does not produce reactions when given in suspension in distilled water or 0.18 per cent sodium hydroxid solution.

(5) Further experiment confirms the observation previously recorded, that the toxic agent can be removed from the new tubing by soaking it in normal sodium hydroxid solution for six hours.

(6) It should be specifically stated that no attempt is made to propose rubber tubing as an explanation of all transfusion reaction which present chills, fever, prostration, and so forth. Tubing is merely proposed as one factor.

(7) The identity and toxicology of the poisonous principle is under investigation.

C. M. ANDERSON.

MYERS, V. C.: **Chemical Changes in the Blood in Disease. III. Creatinin.** *The Journal of Laboratory and Clinical Medicine*, June, 1920, v, No. 9, p. 566.

Creatinin is derived from some special process in normal metabolism taking place largely, if not wholly, in the muscles; and upon the intensity of this process appears to depend the muscular efficiency of the individual. Creatinin is the anhydrid of creatin, the chief nonprotein nitrogenous constituent of the muscle tissue of vertebrate animals.

For perfectly normal individuals the creatinin of the blood amounts to from 1 to 2 mg. per 100 c. c. Although the great majority of cases without renal involvement show creatinin figures on the whole blood below 2.5 mg. per 100 c. c., occasionally figures as high as 3.5 mg. are encountered that are not readily explained. It may be noted, however that a slight retention of creatinin (figures between 3 and 4 mg.) occurs in syphilis, certain heart conditions, sometimes in fevers, and in some cases of advanced diabetes. Creatinin above 3.5 mg. is usually accompanied by an appreciable urea retention. Many of the cases below 4 mg. show improvement, but with over 4 mg. the reverse is usually the case.

Normally the creatin content of the blood amounts to from 3 to 7 mg. per 100 c. c., although the amount may be greatly increased in the last stages of nephritis along with other nonprotein nitrogenous substances.

In studies on nitrogen retention it was noted that the creatinin of the blood was appreciably increased only after considerable retention of urea had already taken place and the nephritis was rather far advanced. It was further observed that those patients in whom the retention had risen above 5 mg. per 100 c. c. of blood rarely

showed any marked improvement, and almost invariably died within a relatively limited time. The only exceptions were cases in which the retention was due to some acute renal condition. Among the patients having very high blood creatinin there were many who were able to be up and about and some who showed considerable clinical improvement. It was in these cases that the blood creatinin gave a particularly good prognostic insight into the true nature of the condition.

Theoretically, the amount of the increase of the creatinin of the blood should be a safer index to the decrease of the permeability of the kidney than the urea, for the reason that creatinin on a meat-free diet is entirely endogenous in origin, and its formation (and elimination normally) is very constant. Urea, on the other hand, is largely exogenous under normal conditions and its formation consequently subject to greater variation. For this reason it must be evident that a lowered nitrogen intake may reduce the work of the kidney in eliminating urea, but it cannot effect the creatinin to any extent. Apparently the kidney is never able to overcome the handicap of a high creatinin accumulation. It would seem that creatinin in being almost exclusively of endogenous origin furnishes a most satisfactory criterion as to the deficiency in the excretory power of the kidneys and a most reliable means of following the terminal course of the disease, though it should be noted that urea, being largely of exogenous origin, is more readily influenced by dietary changes, and, therefore, constitutes a more sensitive index to the response to treatment.

C. M. ANDERSON.

MYERS, V. C.: Chemical Changes in the Blood in Disease. IV. **Blood Sugar.** *The Journal of Laboratory and Clinical Medicine*, July, 1920, v, No. 10, p. 640.

Conditions of hyperglycemia are much more common and of greater clinical interest than those of hypoglycemia, owing primarily to the fact that diabetes belongs to the former group. Among other conditions which frequently show a moderate hyperglycemia are nephritis and hyperthyroidism. Hypoendocrine function would appear to result in hypoglycemia, and comparatively low blood sugars

have been observed in myxedema, cretinism, Addison's disease, pituitary disease and other less clearly defined endocrine conditions such as muscular dystrophy.

All forms of glycosuria are accompanied by hyperglycemia, if we except the glycosuria produced by such substances as phlorizin and uranium, and the analagous clinical condition, "renal diabetes". In mild cases of diabetes the hyperglycemia is not excessive, generally from 0.2 to 0.3 per cent, although in severe cases figures up to and even above 1 per cent have been obtained. The normal threshold of sugar excretion (i. e., the point of glycoresis) is about 0.16 or 0.18 per cent. When the threshold point has been passed, however, the overflow of sugar into the urine may continue until the concentration in the blood has fallen nearly to normal. Ordinarily in the early stages of the disease there is a fairly direct relationship between the hyperglycemia and glycosuria. In the later stages of the disease, however, cases are frequently encountered with marked hyperglycemia and only slight glycosuria, showing that the threshold point has been raised. The cause of "renal diabetes" is obviously due to the reverse condition: viz., a threshold point below the level of the normal blood sugar.

Diastatic Activity and Hyperglycemia.—The increase in the diastase of the blood in nephritis finds probable explanation in the decreased excretion of diastase in the urine, now well known in this condition. Hyperfunction on the part of the ductless glands appears to result in an increase in the blood diastase, and hypofunction, in the reverse effect.

Renal Diabetes.—Renal diabetes has often been compared with phlorizin glycosuris in which condition we have glycosuria without hyperglycemia. A satisfactory diagnosis of renal diabetes cannot be made without a knowledge of the blood sugar.

Diabetes Mellitus.—In the early stages of the disease the glycosuria is an excellent index to the hyperglycemia, but when the threshold point has been raised, as for example in diabetes associated with chronic kidney disease, the appearance of sugar in the urine is rather a poor guide to the glycemia. Although some cases with definite nephritic symptoms retain the power of secreting a urine of high sugar content, a severe nephritis appears to reduce markedly the permeability of the kidney for sugar.

Nephritis.—When there is marked interference with renal func-

tion very small amounts of sugar, or none, appear in the urine, although the blood sugar may go above 0.2 per cent. No satisfactory explanation has been offered for the hyperglycemia, although the suggestion has been offered that some disturbance in the adrenals or other endocrine glands may be responsible for the high blood-pressure, and the increased blood sugar. While there is no doubt that the creatinin does influence some of the sugar estimations, the error is much less than they imply and does not invalidate the deductions that have been made.

Endocrine Conditions.—Cases of hyperthyroidism frequently show hyperglycemia. Experimental proof that hypoglycemia results from hypoendocrine function was obtained by Janney and Isaacson in the case of the thyroid, in which hypoglycemia regularly developed after thyroidectomy. Low blood sugar values have been reported in myxedema, cretinism, Addison's disease, pituitary disease and other less clearly defined conditions such as muscular dystrophy.

Carbohydrate Tolerance Tests.—The advent of a simple method for blood sugar has made possible the estimation of the blood sugar concentration at short intervals after the administration of carbohydrate, usually glucose. With this method of study it is possible to obtain more consistent data regarding the carbohydrate tolerance than with similar tests formerly carried out on the urine, chiefly for the reason that the threshold point or renal excretion is not here a factor in the test.

Myers gives several methods employed for this test, as well as a method for the estimation of blood sugar. As this data is of considerable length, it is not included here.

C. M. ANDERSON.

DANZER, C. S. AND HOOKER, D. R.: **Determination of the Capillary Blood-pressure in Man with the Microcapillary Tonometer.** *American Journal of Physiology*, 1920, lii, 136.

The thesis of the above article is well set forth in the introductory paragraph. "Physiologists have long appreciated the prime significance of the capillary circulation and in recent times clinicians are coming more and more to realize that this part of the circulatory bed is of importance in connection with purely medical prob-

lems. The cardiovascular system functions for the distribution of blood but the effective changes pertaining to the nutriment of the tissues occur in the capillary bed. It is therefore important to know the pressure under which the blood is delivered to the capillaries in different conditions of health and disease and to correlate this knowledge with the functional activity in other parts of the vascular bed."

To the above end the authors have devised an apparatus which they call a microcapillary tonometer. The instrument is of such size as to rest on the stage of a microscope and consists essentially of two adjusting devices. One (a screw) permits the raising and lowering of a rest on which the finger is placed so as to bring an area of skin into a horizontal plane. A second screw adjusts the contact of a pressure capsule with the finger surface. The finger rest is a plate which works so that the finger tip is in a comfortable position and, when the forearm is supported with a comfortable rest, the finger lies easily under observation without tremor or movement. The pressure capsule is made of gold beater's skin and has a connection by means of which air may enter and depart. Through this tube the pressure is regulated and a bypass leading to a mercury manometer permits the determination of the pressure in the capsule. The gold beater's skin of which the capsule is made requires special treatment. It must be free of pores, soft, pliable and transparent. Directions are given for its preparation.

The principle involved lies in the fact that it is possible with a magnification of 70x to see the movement of the red cells in the finger tip due to the oil on the surface of the skin. Moisture interferes with the vision and the finger must be scrubbed lightly with soap and water and thoroughly dried before observation is begun. If these precautions are observed and the whole apparatus is mounted on a microscope stage, one can first focus on the capillaries in the finger and observe the movement of the cells. If, next, the pressure is increased in the pressure bulb by forcing in air, the movement will become slower and slower until no forward movement is observable. At this point a rhythmic to and fro movement appears. Increase of pressure beyond this point produced, first a ceasing of the to and fro motion, and finally a reversal of flow. Decreasing the pressure from this point brings first a stand-still of the corpuscles, then the to and fro movement, and finally the forward movement again. The pressure at the instant of forward streaming is taken to represent the

capillary blood-pressure and the authors' readings were made at this point. They also present graphs showing the pressures at each of the above points.

Using this device they present the following conclusions from observations made:

(1) The method is applicable to the fingers and toes of man. In the cat, dog, and rabbit it can be applied to the shaved ear.

(2) The average pressure in normal sitting individuals was found to be 22.2 mm. Hg.

(3) Cold was found to lower and heat to raise capillary pressure. Posture also affects the pressure even though the hand is kept constantly at heart level. It is lowest in recumbent posture, highest in the standing posture and half way between in sitting posture. Diurnal variation is very slight.

(4) Increased intrathoracic pressure raises and decreased intrathoracic pressure lowers capillary pressure. Venous compression increases capillary pressure.

(5) The authors believe that pallor and redness of the skin are not due to capillaries to any great extent but principally to the venous complexes, and that it is the collapse of these plexuses that causes pallor, and not the emptying of the capillaries.

The article includes a review of previous work and conclusions on the subject.

W. H. EDDY.

BROWN, W. H., AND PEARCE, L.: Chemotherapy of Trypanosome and Spirochete Infections. Biological Series. IV. The Action of N-phenylglycinamid-p-arsonic Acid upon Spirochete Infections. *The Journal of Experimental Medicine*, Nov. 1, 1919, xxx, No. 5, p. 483.

The therapeutic effects of A 63 (N-phenylglycinamid-p-arsonic acid) on spirochete infections were studied on mice, rats and rabbits. Mice infected with the *Spirochaeta obermeieri* and with *Spirochaeta norgi* were treated with A 63, with the result that the progress was checked abruptly, the peripheral blood stream being freed of spirochetes within twenty-four hours. Permanent cures were obtained in not over 75 per cent of the cases treated. The results obtained

from the treatment of rats, infected with either of the spirochetes mentioned, were practically negative.

Rabbits were inoculated (into the scrotum) with *Treponema pallidum*, and this resulted in the formation of scrotal chancres in a series of 29 rabbits. It was found possible with large doses of the drug to completely destroy these organisms, but in other cases, where complete healing of the lesions is accomplished as a result of treatment, the organisms are not destroyed. Moreover, it appears that such a result can be accomplished in the presence of numerous actively motile spirochetes, and once the effect of the drug has reached this point, either the capacity of the spirochetes for stimulating reaction on the part of the tissues is lowered, or the activity of the tissues is reduced. At any rate, the living spirochetes may remain in the tissues for considerable periods of time without giving rise to the usual tissue reactions which characterize these infections.

H. M. FEINBLATT.

FITZ, R.: **The Phenolsulphonephthalein Test and the Non-protein Nitrogen of the Blood in Chronic Nephritis.** *The Boston Medical and Surgical Journal*, Aug. 26, 1920, clxxxiii, No. 9, p. 247.

The records of 15 cases of chronic glomerular nephritis and 26 cases of arteriosclerotic nephritis which had been studied during life by one or more phenolsulphonephthalein tests and blood nitrogen determinations were selected for close analysis. The records of these cases did not suggest any definite relationship between the type of nephritis found at autopsy and the results of these two tests for kidney function made during life nor did they show any close relationship between the amount of gross anatomical destruction of the kidney and the apparent degree of impairment of renal function. These tests do not help in establishing the diagnosis of any type of nephritis based upon underlying pathological anatomy, and are not of significant value in the diagnosis of early chronic nephritis before characteristic physical signs and symptoms have developed. When either test is sufficiently abnormal to be positive, it is usually accompanied by a fairly definite train of physical signs. When both tests are negative in the presence of outspoken symptoms of chronic nephritis, it is not justifiable to assume that no kidney lesion exists.

As to the prognostic value of the phthalein test and the concentration of the non-protein nitrogen of the blood in chronic nephritis, the author believes it is less than the value of a careful clinical study, and while of importance in affording evidence confirmatory to clinical observation, it is of secondary interest.

The conclusions are as follows:

The phenolsulphonaphthalein test and the nonprotein nitrogen concentration of the blood are two tests of kidney function which are being generally used for the diagnosis, prognosis, and treatment of chronic nephritis.

These tests are not of obvious value in the diagnosis as they do not point out the presence of any specific pathological type of lesion in the kidney and as they do not demonstrate the presence of kidney disease in the absence of common physical signs.

From a pathological point of view, there are two common types of chronic nephritis. The essential lesions of chronic glomerulonephritis are found in the glomeruli, and those of arteriosclerotic nephritis, in the smaller renal vessels. Clinically both types of chronic nephritis are usually associated with cardiac hypertrophy, increased blood-pressure, and eye-ground changes, and with a urine which contains albumin, blood, casts, or leukocytes. Both types are chronic and slowly progressive. Chronic glomerulonephritis is a disease of young people, while arteriosclerotic nephritis is more often found in older people.

As the lesions of chronic nephritis advance the phenolsulphonaphthalein excretion diminishes and the nonprotein nitrogen concentration of the blood increases. A single observation with these tests gives less prognostic information than does careful clinical examination.

The treatment of chronic nephritis is largely empirical. The phenolsulphonaphthalein test and the nonprotein nitrogen concentration of the blood offer means by which physiological methods may be applied to the clinical study of individual cases. Unless the technique of these tests is properly controlled, the interpretation of their results is of little value. When these tests are properly performed, they can be used to assemble facts from an individual case which measure the progress of the disease in more or less quantitative fashion, and which make possible the establishment of a logical and systematic form of treatment.

M. M. BANOWITCH.

SECTION ON PEDIATRICS

McMURRAY, T. E.: **The Benzyl Benzoate Treatment of Whooping Cough.** *New York Medical Journal*, July 24, 1920, cxii, 122.

McMurray has obtained satisfactory results in the treatment of pertussis by the use of benzyl benzoate. The dose given was from five to thirty minims every four hours, depending upon results. In some cases decided improvement was obtained from the smaller dose, in other cases larger doses were employed.

McMurray concludes from his experience that benzyl benzoate not only gives immediate relief from the severe coughing spasms, but it also seems to lengthen the interval between the attacks. He saw no untoward effects from the use of the remedy. He gave 20 minims (1.25 c. c.) to a twelve-month old child with no evidence of gastric or any other disturbance.

M. KESCHNER.

SZTARK, C. H.: **Circumcision.** *Archives de medecine des Enfants*, Paris, Nov., 1920, xxiii, 655.

The patriarch Abraham, the great naturalist, seeing the despair of Sara, introduced circumcision as an aid to fecundity. Many races if the near East observed the custom, the Arabians performing excision of the clitoris as well, but the Jews alone have retained circumcision. Christ was not adverse to the rite but St. Paul opposed it. There are three steps in this ancient operation: (1) An annular incision of the prepuce; (2) removal of the prepuce with the fingers; (3) sucking the wound to arrest hemorrhage. As the last step is

the one which occasionally produces septicemia or tuberculous sloughing, it has been replaced by surgical methods in some countries. The author advocates circumcision as a hygienic measure to prevent paraphimoses and to lessen infections and adhesions. Races that have abandoned circumcision have been greatly reduced while the Jews have flourished. Circumcision has cured nervousness and failure to gain in young children. Urinary obstruction due to a tight prepuce ranks with pertussis as a cause of hernia in infants. Urinary calculi, masturbation, incontinence of urine, papillomata and cancers are more frequent in uncircumcised individuals.

W. C. DAVISON.

RIVERS, W. C.: **Stigmata of Predisposition to Bone and Joint Tubercule.** *British Journal of Childrens' Diseases*, London, 1920, xvii, 59-70.

The older writers felt that there was a dyscrasia among individuals susceptible to tuberculosis. Rivers feels that while experimental evidence makes it unlikely that there is such a dyscrasia, still that does not disprove it. In considering bone and joint tuberculosis, he finds that Thomas White was the first to mention his observations that "persons of red or light colored hair are said to be perculiarly subject to this disease". His opinions were confirmed later by Andral, Hufeland, Landouzy and others. Andral wrote that "the coloring matter thus deficient in their skin is likewise so in their eyes, which retain the blue tint of infancy and in their hair which is light colored and also small in quantity. There are certain habits of body, certain constitutions, innate or acquired, that predispose to the development of tubercule."

This opinion is strongly opposed by Shrubsall who found in an examination of children in London, that although fair hair did predominate markedly in the hospital class, yet red hair appeared to be in about the normal proportion. The same authority felt that although pthisical children were apt to be brunettes, yet in cases of joint or glandular tuberculosis, fair traits predominated.

Beneke claimed that a combination of a relatively small heart, relatively narrow circulatory apparatus, relatively large lungs, relatively small liver and a relatively short large intestine was present

in certain individuals susceptible to tuberculosis. Large lungs are more apt to be found in consumption than in surgical tuberculosis.

Skin pallor as well as immaturity or advanced age in the parents were noted by some as predisposing factors toward tuberculosis.

Cornet felt that the heightened permeability of the skin arising chiefly from thinness of the skin might be an individual personal predisposing factor. He pointed to the fact that surgical tuberculosis was commoner in children than in adults and that children's skins were thinner and moreover kept on the stretch by their rapid growth. This type of tuberculosis was also commoner in the female than in the male, the skin of the former being thinner.

Rivers feels that there is a strong *a priori* likelihood that ichthyosis should predispose to surgical tuberculosis on these points:

(1) Ichthyosis increases the permeability of the skin, weakens it as a barrier to infection by reason of the eczema and chapping to which ichthyotics are very liable.

(2) Ichthyotics are subject to congenital defects and abnormalities both internal and external. Cornet claims that congenital abnormalities of the lymphatic system might greatly facilitate tubercular infection.

(3) Ichthyotics are of originally weak constitutions according to some authorities. He also thinks that a skin poorly or abnormally pigmented should be a likely component in the predisposition to surgical tuberculosis.

M. B. GORDON.

COWIE, D. M.: **The Duct Sign in Mumps.** *American Journal of Diseases of Children*, August, 1920, xx, No. 2, p. 75.

In mumps the presence of a reddened spot measuring from 1 to 2 mm. in diameter, situated at the orifice of Steno's duct on the affected side, has been noted by the author in 96 per cent of the cases recorded, and he thinks it is present in all at sometime during the course of the disease. The mucous membrane must be separated from the teeth and a good light used. The spot may or may not be "teatulated" from 1 to 3 mm. The duct is edematous and usually pale, thus emphasizing the central red zone which surrounds the opening of the duct, sometimes giving it the appearance of a ring

around the dark lumen. It is a progressive development and recedes gradually in the reverse order. In some cases there may be distinct hemorrhages in the surrounding buccal mucous membrane. The sign is influenced by the presence of fever. It has not been determined whether the sign is pathognomonic of specific parotitis or is present in other acute inflammatory conditions of the gland. It is only an aid in the diagnosis of parotid gland involvement.

T. B. GIVAN.

SAINZ DE AJA, E. A.: Hereditary Syphilis. *Archivos Espanoles de Pediatria*, June, 1920.

The writer claims that every child born before the end of the normal gestation period is certainly luetic.

As to the Wassermann reaction, he regards it as of value only when it is positive. The luetin test he thinks, is a more delicate one than the Wassermann and it is more serviceable in the diagnosis of these congenital cases, but here again a frankly positive reaction is pathognomonic of lues, whereas a negative result means little.

The prognosis of the infection in the new-born is always grave, mainly because the treponemata enter the child's body in fetal life through the blood stream. This injures the following organs in order: the liver; the lungs; other viscera; and all the skin and mucous membranes.

In a word, syphilis of the fetus or new-born is a disease of visceral origin.

The treatment is guided by three important considerations. First, the dosage of drugs in the new-born is not an exact one; second, we are dealing with an enfeebled body with very low powers of resistance; and third, there is almost always a lesion of the liver which greatly interferes with the digestive power, and the general nutrition, and, furthermore, contraïndicates the use of arseno-mercurial treatment in dosage appropriate to the age and to the case. The writer decries mercurial baths and fumigations as uncertain, and difficult of employment; furthermore, he does not approve of the oral administration of mercury, as the results are uncertain and the tendency to vomiting and diarrhea are marked. Inunctions are an excellent measure as they can be used in all parts of the body without

causing digestive disturbances. The writer also recommends daily inunctions for ten days, followed by ten days of rest; this regimen is to be repeated as long as there are symptoms of activity. In latent cases he advises ten inunctions a month during the first year of life.

When injections are used, he prefers benzoate of mercury, but strenuously objects to gray oil, the salicylate and other insoluble preparations, because they are dangerous to the kidneys when absorbed. When arsenical treatment seems to be indicated, salvarsan may be given. Treatment should begin with a half centigram per kilo body weight and going up to one centigram. The weaker neo-salvarsan is preferred owing to its milder action, in doses of from a half centigram (0.005 gram) per kilo body weight up to a maximum of one and half centigram (0.015 gram). These intravenous injections may be given weekly in a series of seven, and the mercurial treatment may be given simultaneously or alternately. The question of a mother nursing a leptic child should be determined as follows: If the infection of the mother is recent and the child bears no evidence of infection, then the mother should not nurse it; if the child is surely infected, then the mother should either nurse it, or the child should be put on the bottle, as a wet nurse would be exposed to inoculation.

W. H. DONNELLY.

MARFAN, A. B.: **Cows' Milk Diarrhea in Infants.** *Le Nourrisson*, Paris, March, 1920, iii, 81.

This exhaustive consideration of diarrhea in bottle-fed infants is a sequel to an article on cows' milk dyspepsia in *Le Nourrisson* of September, 1919. Marfan distinguishes cows' milk diarrhea from the diarrhea of breast-fed babies, by its frequency, the character of the stools, its accompanying digestive disturbances and especially by its effect on the general nutrition of the patient and the gravity of its complications. It may begin without prodromata, or it may be preceded by constipation, habitual vomiting, nervousness or insomnia, or it may be secondary to grip, bronchopneumonia, measles, leptic cachexia or tuberculosis. Diarrhea is the main symptom. The stool may consist of mucus and curds or be liquid; it is usually greenish but has a more yellowish tinge than the breast-milk stool;

its reaction is usually alkaline and the odor fetid though it may be acid. Chemically the stool shows an excess of mineral salts, of mucus and sometimes nucleoproteins; products of putrefaction (ammonia and indol) not found in breast-milk stool are present and the stool is greasy. Characteristic of the liquid stool is the excess of acetic, butyric and lactic acids. Symptoms accompanying this type of diarrhea are colic, a relaxed and excoriated anus, meteorism, and occasionally loss of appetite, and vomiting. Gastric symptoms are lacking or insignificant. The urine is more acid than normal, and may show traces of albumin. Intertrigo is common. The temperature is normal or slightly elevated; a sharp rise signifies the presence of complications. Irritability, anemia and failure to gain are the rule. The course may be transitory, is usually relapsing and occasionally chronic, with periods of exacerbations.

Complication.—Cows' milk diarrhea is characterized by the frequency, the rapidity and the gravity with which nutrition is impaired, leading to hypothrepsia and athrepsia. Choleric form intoxication with dehydration may occur suddenly, especially in hot weather and is usually fatal. Among the common secondary infections are thrush, otitis media, bronchitis, pneumonia, skin infections, septicemia with nephritis, pyelitis and meningitis. The prognosis is grave, especially in young infants and those with weak constitutions, hereditary lues or tuberculosis. The pathological lesions most commonly found are hyperemia of the intestine below the jejunum and mucoid transformation in the glandular epithelium. Bacteriologically no etiological agent has been discovered. The intestinal flora is either normal or there may be a preponderance of certain varieties of the normal flora, either the acid formers or the putrefactive organisms. The products of these bacteria may aggravate the disease, but do not cause it. Immediately after death these organisms may be found in the intestinal glands and sometimes in the submucosa; this invasion is probably a terminal one; it is not found in normal infants. Blood and tissue cultures except in cases of secondary septicemia are usually sterile; very rarely intestinal bacteria are found, but Marfan believes these pass out during the agonal stage.

Etiology.—This may be secondary; cows' milk diarrhea, due to diminished digestive powers following any illness and continuing after that illness, has been cured. The primitive diarrheas are di-

vided into two groups; those of alimentary origin called external, and those due to defective function of the digestive apparatus itself called internal. One cause, a very common one, may be put into either group; the congenital inability of most infants to properly digest milk from another species. Substituting cows' milk for breast milk is in itself a cause of diarrhea in young infants. Among external causes are overfeeding, the abuse of cathartics and changes in cows' milk. These changes may be due to disease of the cow, to bad fodder, or to bacterial decomposition. Marfan calls attention to the fact that careless sterilization of cows' milk serves only to eliminate the acid-forming organisms leaving the putrefiers free to develop and rot the milk. Internal causes are congenital debility and bad heredity (syphilis, alcoholism, neuropathy or tuberculosis). Digestive weakness sometimes appears with teething, hot weather, undernutrition and any disease of the digestive tract. Factors causing cows' milk diarrhea and determining its character fall into three groups:

(1) Diarrhea is due to exaggerated peristalsis and hypersecretion in the intestine; this may be produced by irritation of several origins—it may come from the blood in diarrhea secondary to disease elsewhere, from the ingestion of bad milk and from the presence in the intestine of irritating undigested or partly digested milk due to feeble digestive powers.

(2) Modifications in intestinal flora do not precede diarrhea, but once this is established, changes in flora often occur which lead to further intestinal irritation.

(3) Deterioration in the general nutrition depends upon defective digestion and insufficient assimilation, and perhaps to auto-intoxication and results in lowered resistance to secondary infections.

A. T. S. DAVISON.

PHILIP AND FEY: Gastric Perforation and Streptococcus Peritonitis in a Nursling One Month of Age. *Archives de médecine des Enfants*, Paris, 1920, xxiii, 490.

A case of peritonitis in a boy of one month is reported. There was no obvious external cause. Laparotomy was performed but the child died a few hours later. At autopsy two non-traumatic ulcers

were found in the stomach wall, one of which had perforated and was probably the cause of the peritonitis. No pyloric ulcers were demonstrable. The authors believe that the ulcers resulted from the intensive feeding and consequent athrepsia and weakening of the gastric wall.

W. C. DAVISON.

PORTER, L., MORRIS, G. B., AND MEYER, K. F.: **Certain Nutritional Disorders of Children Associated with a Putrefactive Intestinal Flora.** *American Journal of Diseases of Children*, 1919, xviii, No. 4, p. 254.

The authors first refer to the acidophilic organisms found in stools from breast milk and other high carbohydrate feedings, in contrast to the proteolytic flora which is present in the intestinal tract of children on a diet high in animal protein, as cow's milk. Furthermore, the former condition may be relieved by a high casein diet, as albumin milk, the latter by the use of food high in carbohydrates.

The following types of alimentary intoxications were studied with reference to their etiologic relationship to protein splitting organisms:

- (1) A mild type, known as Finkelstein's balance disturbance.
- (2) An acute type with sudden onset, shock, loss of weight, extreme toxemia with acidosis, often fatal.
- (3) A grave, chronic type with diarrhea, anorexia, progressive loss of weight and intoxication, occurring between the tenth and twentieth months usually.
- (4) Chronic malnutrition of older children.

The acute fulminating type directed first attention. The stools of all showed a predominance of putrefactive organisms. A routine treatment was instituted in 9 cases of this type, resulting in only one death, due, perhaps, to the fact that the patient was brought in late in the intoxication. The treatment consisted in stomach lavage with 2 per cent NaHCO_3 solution and bowel irrigation of 5 per cent NaHCO_3 solution, two or three times daily. Large quantities of iced 7 per cent lactose solution with 2 per cent NaHCO_3 solution was given by mouth in spite of vomiting; no other food was permitted. Routine intravenous injection of isotonic glucose solution and Fisher's

solution intravenously, if acidosis was severe, were given. Improvement in each case began when the stool changed from putrefactive to fermentative type.

The case of a three months' old baby illustrative of this type is presented. The baby was taken from the breast and, in turn, was on a 2-1.75-2.5 cow's milk mixture, protein milk with dextri-maltose, and finally, when the stools were liquid and frequent, with extreme loss of weight, depressed fontanelles, pallor, etc., a condensed milk formula was given, alternating with a breast feeding. All symptoms became worse. The child was then given the treatment as outlined with a 10 per cent solution of dextrimaltose, three ounces every two and one-half hours. On the third day the bowels and the general condition were greatly improved. On the ninth day the bowels were normal. Very dilute milk with high CHO percentage was then added. With the improvement of the baby's condition was noted a displacement of the putrefactive organisms.

A case illustrating the grave chronic type follows: A child of seventeen months was normal to the tenth month, when he was weaned from breast and put on equal parts of top milk and water with two teaspoonfuls of lactose to each ounce of feeding. After a few months he developed vomiting and diarrhea. The stools, six to eight a day, were very offensive; irritability, loss of turgor, acetone breath, "pseudo-catatonia," sunken eyes, and fever [103° F. (39.44° C.)] were some of his symptoms. For two days only fluid and two and one-half ounces of lactose per day were allowed. Gradually other carbohydrates were added, but no milk; castor oil was given on alternate days. After three weeks of improvement, a sudden attack of diarrhea appeared, at which time the stools showed a high content of putrefactive organism. The original regime was instituted again; after ten days the stools were more nearly normal and symptoms had disappeared.

The authors point out further that many babies of the balance disturbance class show an excess of the proteolytic flora, and improve once they are given a high carbohydrate diet, such as malt soup.

Again older children of school age, who present symptoms of lassitude or irritability, with a capricious appetite, but who are pale and underweight, show a similar flora and respond to rest in bed with a high CHO feeding.

Next the method employed in determining the flora of a stool is

presented and illustrated by plates. It is so simple that it may be carried out in any office laboratory.

The conclusions reached from the study are:

(1) Normal children show a balancing of the intestinal flora, i. e. proteolytic and saccharolytic.

(2) Cows' milk produces a complex flora, mostly facultative putrefactors.

(3) Certain types of alimentary intoxication with malnutrition show a putrefactive flora predominating.

(4) These same children become normal only after the flora is changed to fermentative type, then back to a balance.

(5) The change from proteolytic to fermentative flora may be accomplished by an animal protein-free diet, consisting of large quantities of lactose and other carbohydrates over a period of from ten to forty days. The influence of acidophilus cultures is not great.

(6) Lactose and dextrans are the carbohydrates preferred in establishing a fermentative flora.

T. B. GIVAN.

SECTION ON
ROENTGENOLOGY AND ELECTRO-
THERAPEUTICS

COLLECTED ABSTRACT OF THE LITERATURE ON
ROENTGENOLOGY FOR THE YEAR 1919

By I. SETH HIRSCH

ORGANS OF DIGESTION (GASTRO-INTESTINAL TRACT)

(Continued from Page 88)

Liver

Robert Knox (The Examination of the Liver, Gall-bladder and Bile-duct. *Archives of Radiology and Electrotherapy*, July, August and September, 1919, xxiv, No. 21, pp. 37 [July], 79 [Aug.], 119 [Sept.]) says the value of a correct diagnosis of the presence of gall-stones in the gall-bladder or bile-ducts is very great because of the difficulties in diagnosis of lesions on the right side of the upper abdomen, the structures situated in this region giving rise to perplexing symptoms. The *x*-ray examination of the liver and structures in its vicinity is sometimes extremely useful, and if the percentage of accurate diagnoses can be increased, the value of the method will rise proportionally to the increase in the percentage of accuracy. It is, therefore, essential that all steps should be taken to ensure the proper carrying out of the technic. Three conditions are essential for proper diagrams:

- (1) The roentgenologist should be conversant with the anatomy of the region.
- (2) He should have a sound working knowledge of clinical medicine.
- (3) He should have a familiarity with the roentgenograph and its interpretation.

A review of the literature of the roentgenology of the liver and gall-bladder reveals a gradual conversion of roentgenologists from an attitude of almost sceptical indifference to one of overweening con-

fidence in the conviction that gall-stones may be diagnosed in a very large percentage of the cases examined.

The great difference in opinion as regards the value of the method in the diagnosis of gall-stones may be largely explained by a difference in the technic employed by various workers and by the importance they attach to the exhibition of doubtful shadows. Since technic is readily standardized, the only question not is the interpretation of the shadow. The demonstration of a doubtful shadow may be of considerable value, in that it may lead to further investigation. It should not be taken as an indication for operation when clinical signs and symptoms do not support the suggested diagnosis. A negative roentgenographic report is of no value, because it is not possible to demonstrate all cases of gall-stones, and we have the authoritative statement of C. H. Mayo that "largely to depend upon roentgenographic evidence, as now developed, would be to step back twelve years in the advance of gall-bladder and bile-duct surgery and diagnosis."

A careful study of the doubtful shadow is of value if for no other reason than that it encourages research, and stimulates the observer to obtain better results in order that a more positive opinion may be expressed. The observation of, and the recording of all doubtful shadows must be of value when operative measures are afterwards employed, because then the findings of roentgenography may be compared with what is found at the operation.

The author's investigations were carried out under the following headings:—(1) Anatomical considerations; (2) pathology of gall-stones, classification, and chemical composition; (3) experimental investigation on absorption coefficients of gall-stones and surrounding tissues; (4) roentgenographic appearance of gall-stones; (5) technic of the examination; (6) situations in which gall-stones may be found; (7) differential diagnosis; (8) the pathological gall-bladder; (9) record of cases; (10) résumé of the literature and general conclusions.

Anatomical Considerations.—Cross-section plates of anatomical dissections are very valuable, because then it is possible to make out with a fair degree of accuracy the exact position of the gall-bladder and the bile-ducts, and their depth from the anterior, posterior, or lateral walls.

Gall-Stones (Biliary Calculi).—Of solitary gall-stones there are

two principal varieties: (a) Oval, somewhat translucent masses, smooth or slightly irregular on the surface, and measuring, perhaps, from a half to three-quarters of an inch in diameter. These are easily cut or broken, and, on section, do not show lamination. They are composed almost entirely of cholesterin.

(b) Acorn-like masses, from, it may be, one inch to one and three-quarter inches or more in length, and having a smooth surface which is covered with mucus. These are often dark in color, and, on section, show distinct concentric lamination. They are composed of cholesterin, bile pigments, etc.

Multiple gall-stones are much more common. There may be two, three or more of these, or the numbers may reach hundreds. If few, they are, as a rule, comparatively large; if numerous, they are small. They are usually faceted, and the gall-bladder may be completely filled with them. They are brownish-yellow in color, have a smooth surface, and on section present a central darkish nucleus surrounded by more or less regular layers of different colors—the lighter colored layers being usually cholesterin, the others combinations of bile pigment with lime salts. Extremely small calculi, composed almost entirely of bile pigment—biliary sand or gravel—may occur in enormous numbers. Small, soft masses—putty-like in consistence and usually dark in color—are of frequent occurrence in the gall-bladder. They probably represent an early stage in the process of calculus formation.

Adami gives the following classification of gall-stones:

(a) Pure (or almost pure cholesterin), most often single and of oval shape, of white or yellowish color, consisting of 95 to 98 per cent of cholesterin. There is a minimal amount of associated calcium present.

(b) Laminated cholesterin, also solitary, often of large size, white or yellowish in color, differing from Group *a* in containing a larger percentage of calcium.

(c) Common gall-stones, single or numerous, deep brown, reddish brown, or green in color. There is a nucleus or central portion which may be a cavity. The cavity is due to the drying of a soft nucleus. One section, the calculus, shows a characteristic concentric structure consisting of successive layers. The main constituents are, cholesterin, bilirubin, calcium, with small quantities of copper and iron. Calcium carbonate is not uncommon, and is laid down in

minute nodules, more rarely in considerable quantities. Calcium sulphid and phosphates have been detected.

(d) Pure bilirubin calcium, often occurring as bile gravel and consisting almost entirely of calcium salts.

(e) Pure calcium carbonate. These are generally small and very dense in structure.

Experimental Investigation on the Absorption Coefficient of the Various Constituents of Gall-stones and Comparisons with Tissues Around the Gall-bladder Area.—The property possessed by all organic and inorganic bodies of absorbing radiations is an important one in regard to the demonstration of gall-stones by x-rays. This property varies with the density of the body in direct ratio to the density. It has been generally understood that gall-stones are not opaque enough to offer sufficient obstruction to the radiations, and that the rays in a large percentage of the cases examined pass through the gall-stones leaving no trace of their presence upon the photographic plate. That this is not so can easily be demonstrated. A number of gall-stones of varying size and density placed upon a photographic plate and submitted to x-rays all gave a clear impression upon the plate, and in no instance did the rays fail to make an impression on the plate. The value of a short exposure is great when roentgenographing stones in the living subject, because when a long exposure is given, movements on the part of the patient during respiration lead to a loss of sharpness in the shadows of objects in the roentgenogram. In attempting to differentiate these shadows when very thin negatives are obtained, it is essential that the shadows be sharp, since blurring of the edge of these shadows may prevent the observer from appreciating their presence.

When the density of a gall-stone and liver tissue or muscular tissue is equal, it may be impossible to differentiate between them. Should the shadow be superimposed by bone, such as a rib or a transverse process of a vertebra, the gall-stone shadow may be overlooked.

The density of the gall-stone and that of the liver may be equal; it may be assumed that in this circumstance no shadow of the gall-stone will be obtained, the one negating the other.

To increase the contrast with short exposures, intensifying screens will be useful; a double-coated film with two screens, one on the back and the other on the front of the film, will give a negative full of contrast and very fine detail.

Gall-stones vary greatly in their density, and consequently in their power of absorbing radiations. A small stone which contains a large percentage of calcium salts will be very opaque and will require a large percentage of tissue to completely block the detail; as a rule a stone will show through 16 mm. of aluminum, while a very dense stone may be seen through 32 mm. These very dense stones are exceptional; they approximate in density to the oxalate stones met with in the kidney, and when one is found in the renal area, it may lead to difficulty in diagnosis.

The statement that an average stone may show through 16 cm. of tissue, when the correct type of plate is obtained, may appear to be contrary to accepted evidence, and possibly to some experimental results which will follow this paper. The statement will be made that liver closely approximates in density to pure cholesterin stones. Pure cholesterin stones are relatively rare, since the accepted description of these allows for 10 per cent of other substances, and in that percentage is included a small percentage of calcium salt. A cholesterin stone, when roentgenographed with a "soft tube" and a piece of liver tissue for comparison of density gives only a faint outline. By increasing the spark length, and necessarily the potential, greater penetration will follow. It should then be possible to differentiate the gall-stone from the liver tissue.

Sixty-five per cent of the unfiltered radiation is absorbed by the first inch of tissue, while at a depth of two inches the total absorption is 91 per cent of the unfiltered rays against 77 per cent of the filtered rays. At two inches depth the curves practically meet for the two types of rays and proceed onwards together. This clearly demonstrates that the rays from a very soft tube can have very little photographic action when they are passed through the tissues of the body, as they must be when *x*-raying for gall-stones.

Experiments which the author made clearly demonstrate that the tissues absorb a large percentage of the "softer rays", and that the rays which give the detail in the organs and even in gall-stones are rays of "medium hardness", and that it is a fallacy to depend upon getting detail in substances which are not very opaque with a "soft tube" when these structures are in the interior of the body. A hard tube, if the right exposure is given, will show a shadow of the object; hard rays do not entirely pass through gall-stones, as was formerly taught. When so-called soft rays are used, the tissues of the body

act as a filter and absorb practically all of these soft radiations; the rays which act upon the plate in the roentgenography of gall-stones are the medium and hard rays. Prolongation of the exposure will certainly give denser and more fully exposed roentgenograms, but that takes place only because a large percentage of the medium and hard rays get through the tissues and so act on the emulsion on the plate. Prolonged exposure with "soft rays", so long as they do not possess the property of penetrating the tissues, will not give denser plates; the rays will be absorbed by the tissues for an indefinite time. To put the matter into the form of a simple arithmetical problem; if a beam of radiation contains 10 per cent of rays of a wave length capable of penetrating six inches of tissues, and 100 represents the total dose to give a full exposure, then if in an exposure only 10 per cent gets through, the result will be an underexposure. Now multiply the exposure by 10 times, then the result will be the correct exposure.

So in roentgenography, if a full exposure is given with either soft or hard rays the plate when developed will show the effect of full exposure.

TECHNIC FOR THE EXAMINATION OF THE LIVER, GALL-BLADDER, AND BILE-DUCTS.—*Special Preparation of the Patient.*—This is most important. The bowels should be thoroughly evacuated a day or two before the examination, and on the morning of the examination several enemata may be given in order to ensure that the large bowel is thoroughly emptied. No solid food should be allowed on the day of the examination, until the examination has been satisfactorily completed. The patient should be instructed while the exposure is being made to "hold the breath"; difficulty may occur in getting some patients to do this properly.

The Position of the Patient.—There are three positions employed in the roentgenography of the liver and adjoining organs. For fluoroscopy there are four: the upright; the prone or supine upon the couch; the oblique; and the lateral. The three positions which are most valuable for the production of roentgenograms are: (a) Patient prone, with plate placed beneath the anterior abdominal wall, with the tube behind the patient; (b) patient supine, the plate on the posterior aspect, and the tube in front of the patient; and (c) the lateral position.

The Carl Beck position is the most useful in the diagnosis of

gall-stones, because it favors the production of the picture with the level of the organs well defined, and tends to throw the gall-bladder below the lower border of the liver. This is in itself a technical point of prime importance. The chest is raised by placing sand-bags or pillows under it; this tends to throw the gall-bladder downward into the abdominal cavity, and so facilitates the demonstration of the stones. The tube is directed at right angles to the plate placed on the anterior abdominal wall. Angling of the tube will aid in obtaining the proper position on the plate.

The Lateral Position.—The lateral position is the most important in all cases, and no examination of the region is complete if this is not employed. In doubtful cases it provides absolutely positive evidence of the position of the calculus by clearly demonstrating its relationship to the spine. A shadow situated behind the level of the bodies of the vertebræ will, in all probability, be a calculus in the kidney.

The exposure should be as rapid as possible. In cases where small gall-stones may be present, and the detection of these depends upon absolute sharpness of the roentgenogram, instantaneous exposures are recommended; if the apparatus is not very powerful, intensifying screens should be used. The patient is instructed to hold the breath during the exposure, however short it may be.

Situations in Which Gall-stones May be Found.—These are: (a) In the gall-bladder, at the fundus, the body, or the neck; (b) In the cystic duct; (c) In the hepatic ducts; (d) The common bile-ducts; and (e) In the liver.

Differential Diagnosis.—The following are the chief conditions which call for consideration in a differential diagnosis: (1) Renal calculi; (2) pancreatic calculi; (3) calcified mesenteric glands; (4) chronic inflammatory lesions of the liver; i. e., liver abscess with calcareous deposits in the abscess cavity; inflammatory conditions of the gall-bladder; i. e., cholecystitis, with thickening of the wall of the gall-bladder, distention of the gall-bladder by the products of inflammation, mucus, mucopus, etc; (5) fecal contents; (6) adhesions of gall-bladder to adjoining structures; i. e., pyloric end of stomach, duodenum, colon, etc.; (7) foreign bodies; (8) calcareous deposits in rib cartilage; and (9) calcified patches in a tuberculous kidney.

The Pathological Gall-bladder.—The demonstration of the

presence of gall-stones in the gall-bladder or gall-ducts is of considerable value in diagnosis. The actual position of a stone or stones may be indicated if the anatomical relations of the gall-bladder and the bile-ducts are kept in view. It may be possible to indicate that a stone is in the cystic or common bile-duct; in the latter situation jaundice may be a pronounced symptom, while pain on deep pressure may also be a determining factor; stones situated in the ducts will not readily change their position with changes in the posture of the patient. Lateral views will clearly show their position, and should enable a differential diagnosis from kidney stones to be readily made. There are other conditions than gall-stones which may be shown by an x-ray examination: of these the most frequently met with will be adhesions of the gall-bladder to surrounding structures, secondary to cholecystitis. The gall-bladder may be shown to be distended with mucus or mucopurulent fluid; a faint globular shadow situated beneath the liver is occasionally seen in the examination of cases in which gall-bladder trouble is suspected. In exceptional circumstances a normal gall-bladder, if distended with bile, may be shown. In good roentgenograms it may be possible to determine the presence of morbid conditions of the gall-bladder without the aid of the opaque meal, though this should always be used as a confirmatory measure in doubtful cases. The colon may be unduly high and fixed in position. A number of cases in which this condition was present have been diagnosed in this way. The pyloric end of the stomach or the duodenal cap may show deformities due to adhesions.

The gall-bladder may be shown to be enlarged, its walls thickened, and the presence of adhesions may become evident when a roentgenogram of the correct quality is obtained.

A tube with a five or six inch spark gap will allow from 50 to 100 milliamperes to pass through the circuit; this should give negatives full of detail in the soft parts. Intensifying screens of very fine grain are also helpful; double coated films with two screens and very short exposures appear to give finer detail. A negative which will show stones with small calcium content should show also detail in the bowel, and it should be possible to differentiate bowel contents from a distended gall-bladder. A thickened wall of the gall-bladder may occasionally be seen. Gall-stones in a gall-bladder full of bile may show as lighter shadows in a denser mass; if they are numerous, the faceted appearance of a typical distended gall-bladder may be seen.

The future of the diagnosis of gall-stones is full of promise if the investigator realizes that it is possible to get very fine detail on the plates, and if he is prepared to devote a great amount of attention to the technic.

Gall-bladder

Frank Smithies, (Primary Carcinoma of the Gall-bladder; An Analysis of Twenty-three Proved Instances of the Disease. *Am. Jour. of Med. Science*, January, 1919) in reviewing 1,000 cases of proven gall-bladder disease, found 31 cases of malignancy, 23 of which were primary neoplasms and eighteen secondarily invaded from adjacent viscera. He observed that the rate of incidence of gall-bladder neoplasms is four times the frequency of primary malignancy of primary neoplasms of the appendix, and that the gall-bladder is involved fifth in frequency of the organs of digestion.

It is commonly asserted that malignancy of the gall-bladder is found three times oftener in females than in males, and that gall-stones occur in females in the same increased proportions; hence one might infer that gall-stones bear the same etiological relations to malignancy of the parts. The author found, however, in his series of primary malignancy of the gall-bladder, that there were 16 males and 7 females.

Out of 11 cases examined roentgenographically, 4 showed shadows in the gall-bladder region strangely suspicious of calculi. Three cases showed interference with an emptying of the stomach with a six-hour retention. One case showed a filling defect at the outlet of the stomach which was interpreted as a pyloric cancer. Fluoroscopic examination was a great aid in determining that the palpable tumor lay outside of the alimentary tract. In 1 case the malignant gall-bladder involved the hepatic flexure of the colon, with resulting colon filling defect and retardation of the colon contents caudad.

Operative Findings.—(1) In 4 cases the malignant change was well defined and located in the fundus of the gall-bladder. In 2 cases there were malignant papillomata. In the remaining 17 there was extensive involvement of the entire gall-bladder with invasion of adjacent viscera. (2) Histologically the lesion was constantly carcinoma of the columnar or spirocheta-cell type. Sixty-nine per cent of cases showed concomitant incidence of gall-stones. A large per cent of the remaining cases gave histories suggestive of calculi. The

question arises: Do the gall-stones, acting as a chronic irritation, produce a malignant hyperplasia of the gall-bladder, or do the gall-stones result as a consequence of the cancerous change altering the excretory function of the gall-bladder mucosa or preventing proper emptying of the viscus?

Charles Eastmond (The Roentgen Recognition of Gall-bladder Disease, *Long Island Medical Journal*, April, 1920) states that gall-stones are the terminal product of gall-bladder inflammation. While it is of value and importance to discover the presence of gall-stones, it is of even greater importance to determine the presence of gall-bladder disease and its complications before calculus formation. Direct evidence of concretions is the demonstration on the x-ray plate of their presence through local variation of density produced by calculi themselves. This local variation of density may be in the form of negative or positive shadows. By negative shadows is meant that the local density is less than that of the surrounding tissue; by positive shadow that the local density is increased. Chemical composition plays a most important part in the production of contrast on the x-ray plate necessary for diagnostic purposes, and this is especially true in the case of gall-stones. Pure cholesterin stones are rarely, if ever, observed by the production of increased density. If a roentgenogram is made of an extirpated gall-bladder containing stones, the calculi will frequently be observed to possess less density than the surrounding medium. Applying this to a patient under examination, the persistence of a local area of diminished density within the shadow of the visible gall-bladder may be correctly assumed to be diagnostic of gall-stones, provided all sources of error have been excluded. The decreased density shadow in these cases is due to displacement of the denser gall-bladder contents by the less dense calculi. It is calcium that produces the positive shadow of gall-stones. The appearance of the stone will depend upon the amount and distribution of the calcium. Some calculi have calcium deposited on the periphery and produce an annular or ring-like shadow. Other stones have small scattered deposits and cause a speckled appearance. A combination of the above two may be present in one stone. There are other stones which have a uniform lime deposit and have the homogenous appearance of renal calculi.

The visible gall-bladder is found to be pathological in such a large proportion of cases that it is fair to conclude that this is the

case. It must be remembered however that the diseased gall-bladder is not always visible on the *x*-ray plate; it may be obscured by an enlarged liver, or it may be shrunken to a very small size. When this is the case other procedures must be resorted to. These procedures comprise what may be termed the indirect or inferential method. It is carried out by a study of the gastro-intestinal tract and recognition of alterations or variations from the normal appearance. The changes appearing in the stomach are those of spasm, more or less constant, affecting the *pars cardia*, or it may be limited to the prepyloric area. The spasm of the upper part of the stomach is usually in the form of an incisura, usually deep and on the greater curvature. The second reflex condition is a spasm of the pylorus or prepyloric portion. Associated with this there is an abnormal emptying time of the pyloric antrum. In many gall-bladder cases it is noted that peristalsis is diminished to a marked degree, sometimes seemingly absent. Adhesions may involve the pyloric extremity of the greater curvature so that it is held excessively high and to the right. The pylorus itself may be angulated with displacement of the cap to the left, or it may be drawn up so that it is vertical instead of horizontal and faces to the right. Associated with this fixation, the pyloric sphincter is often seen in a state of relaxation or incompetency, so that the stomach contents pour out at an abnormally rapid rate. Changes noted in the cap are a general contraction by which the cap retains its characteristic form, but is reduced in size, or a marked irregularity of form due to adhesions. Pressure effects of the gall-bladder may be observed upon the outer side of the cap or pyloric end of the greater curvature; these consist of smooth, oval or circular indentations of whatever part may be pressed upon. The second portion of the duodenum is sometimes affected and this is usually a change in its course which varies from the normal, usually outward under the surface of the liver for a varying distance.

Colonic variations sometimes suggest gall-bladder disease such as an abnormal fixation of the hepatic flexure or proximal portion of the transverse colon to the under surface of the liver.

Intestines

L. Brown and H. L. Sampson (The Early Roentgen Diagnosis of Ulcerative Tuberculous Colitis. *J. A. M. A.*, July 12, 1919, lxxiii, No. 2) use the following technic: The day before the exami-

nation the patient is requested to abstain from taking any laxative. At an appointed hour the next morning he is given a barium suspension on an empty stomach. (Formula: 1 tablespoonful of cocoa, 1 tablespoonful of sugar, 1 tablespoonful of flour, 4 ounces [118.40 c. c.] of barium, and milk to make 16 ounces [473.11 c. c.]). The examination may be made during the ingestion of the meal. However, it is not usually of any importance in this work. Six hours after taking the meal, the patient is examined fluoroscopically and roentgenographically. Usually the cecum and probably the ascending colon are visualized at this time. An examination every half hour for the next hour or two may be necessary in order to catch the cecum partially or wholly filled. When possible, the patient is examined at the end of eighteen hours, but always at the end of twenty-four hours. The eighteen-hour examination may make the twenty-four hour one unnecessary. A day or two later, the patient, having taken an ounce (30.00 c. c.) of castor oil eighteen hours before, returns for a barium enema. The enema is administered by low gravity pressure, from 10 to 12 inches, and the injection is observed fluoroscopically. When the enema is seen to have reached the cecum or, as in many cases, has passed through the ileocecal valve, it is stopped and a plate is made in the prone position.

For convenience, we may say that the normal stomach empties itself in from three to six hours. The head of the barium meal reaches the ileocecal valve in from one to three hours. The ileum empties itself in from five to nine hours. The cecum is seen in from two to four hours after the ingestion of a meal. Six hours after the meal has been taken, the head of the column is seen at the hepatic flexure or at the splenic flexure. Complete evacuation of the meal takes place in from thirty-six to forty-eight hours. The cecum remains well or partially filled from the fourth to the thirty-sixth hour.

It is interesting to note that in a second set of similar cases, the results were identical with those mentioned above.

Pierre Lignac (Antiperistalsis of the Colon. *La Press médicale*, Jan. 20, 1919) states that antiperistalsis so frequently observed in pathological conditions of the gastro-intestinal tract is due to a central or peripheral reflex manifesting itself through the pneumogastric.

The antiperistaltic movements of the colon are physiologic to a certain degree; they can be observed in 50 per cent of the cases

under the fluoroscope and can be proved by clinical facts, like the discharge through the cecum of a matter introduced in the distal end of the colon.

The antiperistaltic waves originate midway between the hepatic flexure and the middle of the transverse colon at a point where a ring of tonic constriction appears as soon as the colon becomes dilated by fresh material coming from the small intestine. These waves are not very strong nor constant, and last only about four or five minutes at a rate of five per minute.

These physiologic antiperistaltic waves were observed only in the first part of the colon at which place they predominate while they last. J. T. Case of the Battle Creek Sanitarium observed them in the distal end also; but all his cases had pelvic tumors or intestinal new growths in which event the antiperistaltic wave started from the point of obstruction, playing the rôle of the ring of tonic constriction.

In all cases of ileosigmoidostomy he found these antiperistaltic waves moving the feces toward the splenic and hepatic flexures and sometimes as far as the cecum.

The fact that this antiperistalsis has been observed in many cases free from all intestinal lesions, would prove that it must be pathologic.

Jakes considers only the antiperistalsis of the ascending and right half of the transverse colon as physiologic, and explains its rôle in maintaining matter there during the long hours of absorption.

An exaggerated antiperistalsis of course should always be considered as pathologic and as indicating a serious intestinal obstruction.

(To Be Continued)

SAINZ DE AJA: Treatment of Skin Diseases by Radium. *La medicina Ibera*, March, 1919, xxix, 440; abstracted in *Journal de radiologie et d'electrologie*, 1919, p. 475.

The author publishes the results he has obtained in the treatment of skin diseases by radium.

Brilliant results were obtained in the cure of lichenoid eczema of neurodermique type, in eczematides, in recent eczema of hairy hide, of the skin, of the folds of the joints.

Efficacious results were obtained in the cure of tuberculous lupus although the action of the radium there was rather slow; satisfactory results were also obtained in cheloidian acne, in pyodermitis and in one case of sclerous erythema of the fingers.

Radiumtherapy appears to the author to be the choice method in dermatologic epitheliomas of benign type without ganglionic reaction. This is as true from the aesthetic point of view as from that of preventing returns. He recalls that radium has always been profitably used in surgical cancer to complete a radical cure, and in inoperable cancers to relieve pain, diminish hemorrhages, and give hope to the patient.

On the contrary the rays of radium are clearly inferior to the x-rays, where it is a question of removing hair, warts, or pruritus.

E. J. SKINNER.

HEYERDAHL, S. A.: Actinomycosis, Treated with Radium. *Journal of the American Medical Association*, Dec. 27, 1919, lxxiii, No. 26, p. 1928.

Six cases are reported, all of the patients suffering from infection, either of the face or neck. Surgery had been attempted with some, and results are reported as follows:

Case 1, cured; case 2, cured; case 4, cured; case 6, cured. Cases 3 and 5 were reported improved, after comparatively short periods of treatment.

H. G. WEBSTER.

SECTION ON NEUROLOGY AND PSYCHIATRY

MACKENZIE, SIR J.: **The Soldier's Heart and War Neurosis. A Study in Symptomatology.** *British Medical Journal*, April 10, 1920, No. 3093, p. 491.

After dwelling upon the importance and necessity for study of symptoms in disease, the author classifies them as: Structural symptoms, or those based upon a modification of the tissues of the organ; functional symptoms, or those due to a modified or deranged function of an organ; and reflex symptoms, or those which are due to a reaction on the central nervous system, or on the nervous mechanism of organs. It is to this last group, and to the mechanism by which they are produced, that attention is directed. All of the structures which make up the external body-wall are more or less sensitive to mechanical stimuli which produce the sensations of heat, cold, touch, pain, etc., while the viscera and the serous linings with one exception are irresponsive to this sort of stimulation. The first structures are supplied by the cerebrospinal nerves, while the second are supplied only by the sympathetic system. If the intestine be pinched or bruised, pain does not occur at once, and not in fact until a sharp peristalsis has been set up; then it is felt in the abdominal wall. The stimulus has travelled along a nerve to the central nervous system which is not connected with the sensorium, but it does affect a neighboring cell which is a sensory one, and gives rise to the sensation of pain, which is localized at its peripheral distribution. No viscus is sensitive and the tenderness which is elicited on pressure is due to the fact that the viscus is palpated through the abdominal wall which has received a spread of stimuli, and tenderness results. By the same mechanism increased muscle tone, or rigidity is produced. Other symptoms are also produced,—vomiting, feeble heart action, pallor, profuse perspiration. Another important feature of the ner-

vous system to bear in mind is its lowered resistance to stimulation, produced by disease and other agencies. This may be general or focal. In the conditions of soldier's heart and war neuroses, this condition of diminished resistance to stimulation has been induced by infection or other cause, and the attempt to lead the life and do the work of healthy men has led to exhaustion, and a variety of phenomena depending upon organs which had been submitted to strain. In examining the sick, one must be guided by the law of associated phenomena, and find the agent which causes a diminished resistance to stimulation.

L. C. JOHNSON.

PEARSON, C. R.: **Is There an Ideal Treatment of Morphinism?** *Journal of Nervous and Mental Disease*, 1920, lii, No. 6, p. 490.

Morphinism is a serious disease. One of the characteristic symptoms is the inability of the addict to free himself from his disease unaided, and the tendency to relapse.

The direct cause of morphinism is morphin. Not only the neurotic become addicted, but the author has found as many of the phlegmatic temperament.

Morphinism may be complicated by other serious diseases, such as diabetes, nephritis, tuberculosis, syphilis of the brain or any other disease that may afflict the non-addict.

The author advocates trusting morphinism to physicians, not to the government.

There is often intense emaciation.

The mental operations are perverted. The patient is not, however, what the author would call insane.

There are a "lack of ambition, the inability to acquire new knowledge as readily as during the preaddiction period of the addict's life; lessened persistence, and a mental concentration, morbid secretiveness and a tendency to seclusion are signs of "perverted mind and perverted metabolism."

The treatment enforced by government is to lock up the patient and take away the drug. The author says: "It is dangerous, because it is unnecessarily brutal, and because it is founded upon the assumption that the addict is a criminal."

As morphinism is a disease it is a crime to put the addict into jail. The man of discipline is easier to treat than the man without a preaddiction habit of self control.

The author treats his patients by gradual reduction without the use of restraints. This helps to build up the self-respect and self-confidence of the addict. It is a constructive and not a destructive method.

Seven of the author's patients became officers in our Army and Navy.

It requires a personality to teach people that they are greatly responsible for their cure, to win their confidence, and give them hope and pride.

Only experience can teach the dosage during reduction, and when complications such as diabetes, nephritis, etc. are present. "The proper guide in making the reduction is not the patient's pulse, respiration or general well-being, but what we have learned from past experience that these cases will voluntarily stand." It depends upon the amount of fight the patient has in him. Morphin, of course, diminishes the patient's courage. Morphin lessens ambition.

When alcohol and morphin both are taken there is often too little of the mind left for the physician's teaching, and, kindness and restraint will have to be practiced over a long period. Many have not the money to be treated by this method and the public does not seem disposed to pay for the time needed.

But even some of the "quick methods" can be rendered safer and more comfortable for the patient.

Hyoscine may be given. It is not a specific for morphinism, but a convenient anesthetic. It should be given with the same care as any other anesthetic. Enough must be given for the purpose but not a bit more. The bowels should be unloaded before the morphin is stopped. The following treatment may be adopted: In the morning before giving morphin, give a large dose of sulphonal. At 10 p. m. give the last dose of morphin, an hour later a full dose of hyoscine, at the same time a dose of pilocarpin and eserine. Regular hours for the administration of hyoscine are a mistake. It takes less hyoscine to keep a patient asleep than it would take if one were to wait until he begins to suffer for want of the drug. As vomiting occurs frequently, hypodermic administration is advisable. The author does not attribute dilatation of the pupil to hyoscine.

A method not so warmly advised by the author is an eight- to ten-day reduction with hyoscin, eserine and pilocarpin. It is safer but it is hardly less uncomfortable for the addict. No time is given to the body to adjust itself.

"If the dosage is correctly learned, the patient can be kept as comfortable as while using the drug *ad libitum*."

FUSAROLI, G.: Complete Transitory Motor Aphasia, Following Follicular Tonsillitis, Followed by Logorrhea (Afasia motoria completa consecutiva a tonsillite follicolare e seguita da logorrea). *Gazzetta degli Ospedali e delle Cliniche*, May 6, 1920, xli, No. 37, p. 403.

The author reports a case of follicular tonsillitis in a child three years old, followed in one week by complete motor aphasia. This continued for eighteen days, the patient being somewhat apathetic, having an aphonic cry, emitting no sound by mouth. The thermic and pain sense was present. There was no evidence of paralysis, all the reflexes being present and normal. There was a slight irregular temperature for the first sixteen days. On the eighteenth day the patient began to talk, at first with some effort, but then followed a logorrhea for three days which was as absolute as was the mutism. The author, after an exhaustive review of the literature, explains the mutism as due to the action of bacterial toxins on the vasomotor system causing vasoconstriction and resulting anemia of the speech center; and the logorrhea which followed, was caused by the sudden cessation of the toxic action on the vasomotor system, producing a vasodilatation and a hyperemia of the same area. After a short time an equilibrium was established and the patient talked normally.

J. B. D'ALBORA.

VERNET, M.: Vertigo. Its Treatment by Adrenalin (Le Vertige: Son Traitement par l'Adrenaline). *La Presse médicale*, July 10, 1920, xxviii, No. 47, pp. 462-4.

The sensation of vertigo originates in some labyrinthine disequilibrium. The sympathetic reactions which are associated with

it, and the endocrine disturbances which are often the cause of it, are as yet very little known.

Vernet believes that at the root of every case of vertigo, there is a labyrinthine disturbance—either vasomotor or toxic—and that consequently the sympathetic or endocrine systems are involved, no matter whether the cause be local, central or peripheral. It is for this reason, that the author has used adrenalin in the treatment of vertigo.

There may be present a spasm of the internal auditory artery or its cochlear or vestibular branches, or, inversely, there may be a vasomotor stasis in the region supplied by this artery. This spasm or congestion may cause vertigo. In fact, any irritation of the labyrinth causes vertigo, for it is well known that destruction of the labyrinth results in a disappearance of the vertigo.

Vertigo associated with the menopause, chlorosis, Graves' disease, gout, arthritis, etc., is also probably due to a vasomotor disturbance caused by changes in the glands of internal secretion.

The symptoms usually accompanying vertigo—nausea, vomiting, sweating, mydriasis, etc.—also originate from some sympathetic disturbance.

Since vertigo, therefore, is a subjective expression of a vasotonic labyrinthine disequilibrium of sympathetic origin, adrenalin seems to be the drug which should be most efficacious in its treatment.

Vernet has used adrenalin in innumerable cases of all varieties of vertigo for a period of four years, with good results. The dose given was from 5 to 20 minims (0.30 to 0.60 c. c.) of a 1:1000 solution, twice daily, *per os*.

S. KAHN.

POROT, A.: **Meningeal Reaction in Malaria.** *Lyon medical*, May 10, 1920, cxxix, No. 9, pp. 389-392.

Routine examinations of the cerebrospinal fluid of patients suffering with malaria frequently reveal a meningeal reaction during the paroxysms. Usually the meningeal irritation is latent, but when it is evidenced by external manifestations, it gives the clinical picture of an acute meningitis.

The author summarizes his findings as follows:

(1) At its onset, malaria occasionally resembles acute meningitis with a sustained fever. This occurs especially in infants and young children. One of the author's patients even developed a strabismus.

(2) Evidence of meningeal irritation is occasionally seen at the beginning of the paroxysms, but more often the clinical picture of meningitis occurs after many paroxysms. The patient may be comatose, and may have convulsive seizures. In this type of case, the plasmodia may not be found in the peripheral blood on single examination.

(3) The meningeal irritation in malaria may have sequelæ, as neuritis or neuralgia, which the author believes to be due to irritation.

S. KAHN.

BERGHINZ, G.: **Cervico-dorsal Meningocele with Double Cord** (Meningocele cervico dorsale con midollo doppio.) *Gazzetta degli Ospedali e delle Cliniche*, May 16, 1920, xli, No. 40, p. 426.

The author reports a case of epidemic cerebrospinal meningitis in a girl sixteen years of age, who had a meningocele in the cervico-dorsal region. At autopsy it was found that the sac contained an "appendix" of the cord and that between the "appendix" and the dura there existed a communication between the dural sac and that of the meningocele. The "appendix" had the complete structure of a normal cord in miniature, and the various sections (cervical, dorsal, lumbar and cauda equina) were easily demonstrated.

JOHN B. D'ALBORA.

HOLLIS, A. W., AND PARDEE, I. H.: **Recovery from Tuberculous Meningitis after Treatment with Intraspinal Injections of Antimeniogococcic Serum.** *Archives of Internal Medicine*, July, 1920, xxvi, No. 1, p. 49.

Tuberculous meningitis is nearly always fatal, and most clinicians on making the diagnosis give up hope of accomplishing anything; they merely treat symptomatically, waiting for the patient to die. The authors point out that there are recorded in the literature

38 cases of undoubted tuberculous meningitis in which recovery took place. Fifteen other cases, in which tuberculosis was highly probable but not proven, and which resulted in recovery, are also recorded. To these, the authors add 2 cases of known tuberculous meningitis and 2 of probable but unproven tuberculous meningitis, which resulted in recovery through the intraspinal use of anti-meningococcic serum. This was used in the first instance because the nature of the infection was at first in doubt and the serum was utilized while a final diagnosis was being awaited. The result was so good that the other cases were treated in the same manner. The rationale of the procedure is not altogether clear, but the authors suggest that the stimulating, or irritating effect of the foreign serum upon the surface of the meninges may have a favorable effect upon the course of the infection. There is also the possibility that the serum contains some helpful antibodies. The frequent spinal drainage, which is, of course, used in conjunction with the serum, no doubt is a valuable procedure in itself.

T. HOWARD.

LEVADITI AND HARVIER, P.: **The Virus of Encephalitis Lethargica.**

Proceedings of the *Societe de biologie de Paris*, March 30, 1920; reported in *La Presse medical*, March 31, 1920, xxviii, No. 18, p. 174.

The authors have succeeded in reproducing encephalitis in a rabbit by intracerebral inoculation of an emulsion of the gray matter from an authentic human case.

The virus, preserved by passing through several rabbits, becomes "*fixed virus*" and kills the experimental animal in from four to six days. The experimental animal shows nervous symptoms—somnolence, myoclonia and meningeal irritation, and typical pathologic lesions. The virus can be preserved in glycerin, and does not grow by the ordinary methods of culture.

The virus is filterable. It can be inoculated into rabbits not only by the cerebral route, but also along the course of the peripheral nerves. After several passages through rabbits, it becomes pathogenic to monkeys.

S. KAHN.

RABOND, L. Ambulatory Form of Lethargic Encephalitis. *Bulletins et memoires de la Societe medicale des hopitaux de Paris*. Feb. 20, 1920, xxxvi, No. 5-6-7, pp. 230-232.

The patient described appeared at the hospital with a complete left ophthalmoplegia of fifteen days' duration.

The onset was gradual, with left temporoparietal headache and diplopia, following which the present symptoms appeared. At no time was there fever or vomiting.

There was a complete left ptosis, and the eye was completely immobile. The pupil was dilated. Light and accommodation reflexes were absent. The right eye was normal.

The only other symptom exhibited was a tendency to somnolence. Otherwise the patient was well.

Under routine treatment, the patient completely recovered.

To this type of lethargic encephalitis—a type compatible with active living, and terminating in complete cure—the author gives the name "ambulatory".

J. KAHN.

LERICHE: Treatment of Jacksonian Epilepsy Due to Old Injuries of the Skull. *Proceedings Societe de chirurgie de Lyon*, June 10, 1920; reviewed in *La Presse medicale*, June 10, 1920, xxxiii, No. 41, p. 409.

Neurologists and surgeons are pessimistic concerning the results of operative interference in cases of Jacksonian epilepsy due to old injuries. Undoubtedly a permanent cure is hard to obtain, but even an amelioration of the condition, with less frequent attacks should be sought.

According to Leriche, patients who have had extensive cerebral lesions and who have frequent epileptic seizures, should not be operated on. Those who have had small wounds and who had previously not been trephined, should be given the chance of improvement by surgical intervention. Although Pierre Marie believes that surgery should be undertaken only if the x-ray shows a definite lesion, Leriche is of the opinion that such a stand is not correct. He cites the case of a patient who had frequent attacks for several years. The x-rays

were negative. Operation disclosed an arachnoid cyst, the extirpation of which resulted in a cure.

If the x-ray shows a lesion of the skull, intervention is definitely indicated. In these cases, small intracerebral bone spicules are usually found. These should be sought for whenever operation is undertaken. To discover them, two factors are important—a clear vision and a minimum of trauma.

S. KAHN.

LUPI, C.: **Latent Epilepsy** (Sull's epilessia). *Gazzetta degli Ospedali e delle Cliniche*, July 3, 1920, xli, No. 55, p. 5.

"One must consider, if nothing else of an epileptic nature, all states of impulsive excitation that arise suddenly, even though not accompanied with other manifestations (Lombroso)."

In support of this Lombrosian theory, not admitted by many psychiatrists (Weygandt), the following observation may be of help:

G. F., male, age 34, single, was taken to the Piacenza Institute for the Insane on December 5, 1914. Family history negative. When 20 years old he was operated on for inguinal adenitis; otherwise there was nothing significant in previous personal history, for he was a robust man, well developed and nourished, with pleasant aspect.

While in a carriage on his way to the city with two friends this day, he suddenly jumped out of the vehicle, and running across a field to the railroad station, thrust himself in front of an oncoming train with suicidal intent. Bystanders saved him, and in his mania he was committed. He soon became quiet, composed, fully conscious of his previous actions, but could offer no explanation or reason for it, and was discharged on parole.

On July 22, 1915, after violent psychomotor disturbances against objects and persons, he was recommitted, and after remaining in the institution five days returned to apparent normal condition, stating that after July 18, 1915 he could remember nothing about what took place. He was discharged after observation.

On Jan. 25, 1916, in a sudden fury, he attempted to decapitate himself with an ax, then thrust himself upon an open red hot fire-place, and soon after ran to a nearby well and threw himself in. Spectators succeeded in bringing him up out of the well with a stout

rope. He was taken to a hospital, 17 sutures were used to close his neck wound, and he was then transferred to the Piacenza Institute again. The next day he described his actions of the previous day in detail, was apparently normal, and remained so for eight months.

In September 1916, after some rise in temperature, he attempted to fracture his cranium against the wall, and would have succeeded were it not for the orderly. From then until April 14, 1917, date of discharge, he had all the signs of a normal mind.

On Oct. 16, 1917, he was discovered in the act of strangulating a woman, and was arrested, and removed to the asylum. This time instead of being maniacal, he was quiet, stuporous, silent, inert, and understood nothing of what was said to him, remaining in this condition for some time in the ward.

On Nov. 6, 1917, about 10 a. m., while seated on a bench, he was attacked with an epileptic convulsion, following which he had several such convulsions lasting for about one-half hour with intervening periods of stupor. He had a similar attack on Nov. 28, and five other attacks within the following four months. Finally on April 19, 1918, he began to have a series of convulsions lasting until April 21, on which date he died at 3.30 p. m.

From this case one can deduce that this individual was without doubt an epileptic, who, under diligent observation in an institution for 16 months, never showed signs of convulsions and whose epileptic constitution was overshadowed by furious actions against himself or others, which at times he could recall and at others not, and that the diagnosis of epilepsy was not confirmed until after his last maniacal act of progressive dementia.

From a medico-legal point of view it is well to note that if this psychotic subject had not attempted violence against himself, but had succeeded in committing a crime upon another, the deduction made that he was an irresponsible person by reason of the existing epilepsy would not hold out favorably, for other findings would generally be required to establish conclusively a diagnosis of epilepsy.

J. R. VALINOTI.

INTERNATIONAL MEDICAL DIGEST



Vol. II

MARCH, 1921

No. 3

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	194
Section on General Medicine - - - - -	195-232
Section on Laboratory and Research - - - - -	233-250
Section on Pediatrics - - - - -	251-260
Section on Roentgenology and Electrotherapeutics - - - - -	261-274
Section on Neurology and Psychiatry - - - - -	275-288
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-x
Index of Subjects - - - - -	x-xxvi

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1920, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLOOM
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

MARCH, 1921

No. 3

SECTION ON GENERAL MEDICINE

L'HERMITTE, J.: **Epidemic Hiccough** (Le Hoquet Epidemique, Forme Singultueuse de Liencephalite Epidemique). *La Presse medicale*, 1920, No. 93, p. 917.

The first epidemic of hiccough seems to have occurred during the winter of 1919-20 in Vienna, however in January 1920 another occurred in Italy. These cases were said to have come on suddenly and lasted a few hours or days. Economo saw one which lasted thirty days. About a month after this epidemic had subsided, a great number of cases of myoclonic encephalitis set in, and in many instances showed singultus, other signs of excitability having preceded, and often going on to choreic states. Economo considered the possibility of a relation between the two diseases, the vagus phrenicus being irritated, perhaps. A few cases were reported by Dufour in Paris in which place hiccough was of the ordinary type, only one patient showing myoclonic convulsions and hallucinations. This patient died. Benard then reported on an epidemic near Versailles, and put singultus under the head of myoclonic manifestations in lethargic encephalitis. Staehelin, writing from Galatingen, arrives at the same conclusion in treating an epidemic transitory ocular paralysis and ensuing epidemic hiccough, followed at last by many cases of epidemic encephalitis. Numerous reports followed in Paris, the cases either following naso-pharyngeal catarrhs, or grippe, or arising during good health.

Singultus is the result of a double contractive syndrome of the diaphragm and the glottic constrictors. At the moment of expiration a repeal of air occurs by the clonic contraction of the diaphragm; the current of air is cut off by spasmodic stenosis of the glottis. The vibration of the lips of the glottis produces the guttural sound.

With each phrenoclonic contraction the abdominal walls are passively elevated, but their muscles show no spasmodic contractions. In epidemic hiccough there is this difference, that the spasms are not strictly confined to diaphragm and glottis, but go on to abnormal and dorsal muscles, especially of the back, and extremities. Economo and Reilly show the spasmodic contractions of the abdominal walls as unilateral.

The author considers hiccough a form of epidemic central nervous disease. It is encountered with predilection in persons whose gray cervical substance above the bulb is diseased, or in persons with acute meningeal pathology. The author does not agree with Sicard and Paraf that beside a bulbo-cervical lesion, there is such of the connecting zones, where rhythm according to these authors, is located.

Treatment must endeavor to combat bulbo-spinal and vago-phrenic hyperexcitability and must dull reflex action. Belladonna, atropin, cocain, morphin, bromids, camphor, and oxygen are advised. So is compression of the spine, upper limbs, cubital nerve, eye-balls, or pressure on the diaphragm by forced flexion of the lower limbs; furthermore, distention of the esophagus and stomach, ice compresses on the pit of the stomach, and putting out of the tongue are recommended.

RIVET, M. L.: **Notes on Epidemic Hiccough** (A propos du Hoquet epidemique). *Bulletin et Memories de la Societe medicale des Hopitaux de Paris*, 1920, 3 series, A. xxxvi, No. 39, p. 1541.

Three patients presented hiccough simultaneously; they must have had a benign type. A fourth case lasted several days without presenting other symptoms. Upon radioscopic examination H. Haret pronounced it a condition of aerophagy. One of the patients was an electrician, twenty-one years of age, who had always been in good health. He awoke one morning with pain in the neck. In

the afternoon hiccough set in, lasting all the night in attacks of fifteen minutes at half-hour intervals. Next morning three or four attacks occurred in the forenoon with no other symptoms, except shivering, trembling in the chest, and some nausea and vomiting. The condition lasted three days, and nothing resulted but a certain degree of soreness of the inside of the left arm which was formed the last day. The patient did not know of his having come in contact with similar patients. The author advised the swallowing of large morsels of bread to relieve the spasm. One patient had hiccough for five days without other symptoms.

Among 30 cases, generally in groups living together in a family, or working together in an office, there was but one woman found after two weeks' duration.

In 40 cases near Lille, Dr. Bierent found men only. They all showed a febrile state, headache, and digestive trouble. This doctor found many of these patients coinciding with those who had had mild influenza.

CHESNEY, A. M., AND SNOW, F. W.: **A Report of an Epidemic of Influenza in an Army Post of the American Expeditionary Forces in France.** *The Journal of Laboratory and Clinical Medicine*, Nov., 1920, vi, No. 2, p. 78.

The investigations of the authors gave the following results:

(1) During the period from July 1 to March 1, 1918, a respiratory infection diagnosed as influenza occurred in epidemic form among United States troops located in and around the post of A. P. O. 704, American Expeditionary Forces, France, situated at the French Camp LeValdahon.

(2) More than 3,090 cases occurred in this epidemic.

(3) Approximately 12 per cent of these cases developed pulmonary complications, with a resultant case mortality rate of approximately 46 per cent.

(4) The epidemic manifested itself in a series of successive outbreaks as different artillery brigades, hitherto unexposed to the disease, were in turn exposed.

(5) These successive outbreaks tended to be progressively severe in character and extent. Evidence has been brought forward

to indicate that this fact was due to increasing virulence acquired by infecting agents.

In addition to the cases with pulmonary complications (chiefly pneumonia, broncho- and lobar), there were a number of cases of meningococcus meningitis, which developed during the period of convalescence from influenza.

C. M. ANDERSON.

ROBINSON, B.: **The Inhalation Treatment in Pulmonary Tuberculosis.** *Medical Record*, Jan. 24, 1920, xcvii, p. 143.

For many years Robinson has employed creosote by inhalation in all cases of pulmonary tuberculosis. He has used and insisted upon the frequent and almost continuous employment of the perforated zinc inhaler. He employs equal parts of beechwood creosote, spirit of chloroform and alcohol. Ten to twenty drops of this mixture are poured upon the moistened sponge of the inhaler and the inhaler is worn over the nose and mouth while the patient inhales naturally and with no effort the vapors which arise from the mixture. The inhaler is held in place by two light rubber strings behind the ears.

At first the inhalation may aggravate the cough. This disadvantage, however, is soon overcome by removing the inhaler after a few moments inhalation, and resuming its use after fifteen or thirty minutes. Very soon the patient can wear the inhaler without discomfort, and, with some relief to cough and breathing, an hour or more at a time. Before long, the patient can wear it almost continuously and with little or no discomfort. Some patients sleep with the inhaler during the entire night. The solution on the sponge should be renewed from time to time and whenever the odor of the creosote becomes less appreciable. When the patient wears the inhaler continuously, it is well to examine the urine every day or every other day, and if a trace of albumin appears, to lessen the length of time and frequency of its use.

Some patients—and there are only very few of these—cannot tolerate the inhaler at all, and for these he prescribes six minims (0.36 c. c.) of beechwood creosote, one ounce (30 c. c.) of the best glycerin and two ounces (59.20 c. c.) of good whiskey. Of this mixture he orders a dessertspoonful every two or three hours. Even

when the patient uses the inhaler frequently and almost constantly, Robinson thinks it is wise sometimes to give creosote internally, in small doses.

The combination of *oleum pini sylvestris* or compound tincture of benzoin with the creosote is both efficient as a therapeutic measure and does away with the disagreeable smell of the creosote.

When the cough is very racking, pure chloroform may be substituted for a while for the spirit of chloroform, but when this change is made, the inhalation should not be prolonged at any one time and the effect of it must be carefully watched. There is much evidence according to the author, that pure chloroform in the inhaling mixture, will at times afford great temporary relief to cough.

"Cresote", says Robinson, "is to me the only drug, when properly used, which has a very real value in the cure of pulmonary tuberculosis."

M. KESCHNER.

HEISE, F. H., AND BROWN, L.: **Adrenalin Hypersensitiveness in Definite and Unproved Pulmonary Tuberculosis.** *American Review of Tuberculosis*, Oct., 1920, iv, No. 8, p. 609.

The authors used the Goetsch method, and in a series of 260 patients there were 205 with pulmonary tuberculosis. Of the tuberculous cases 14 per cent reacted to adrenalin. Of the nontuberculous, 29 per cent reacted to adrenalin. When there was evidence of tuberculous activity as shown by symptoms, x-ray or complement fixation, 10 per cent reacted to adrenalin. And when there was no evidence of tuberculous activity, 13 to 19 per cent reacted to adrenalin. When the sputum was positive for bacilli, 10 per cent reacted to adrenalin, and when negative 17 per cent reacted to adrenalin. Seventeen per cent of the cases having hemoptysis of a dram or more reacted to adrenalin. In no case with a history of pleurisy with effusion was the test positive. When a history of dry pleurisy was given, reaction was positive in 14 per cent.

The authors' conclusions are that the reaction is twice as frequent in the nontuberculous as in the tuberculous (14 per cent and 29 per cent). The activity played little part if any, and adrenalin hypersensitiveness apparently has no direct relation to the occurrence of a

positive or negative complement fixation for tuberculosis. Hypersensitiveness was two and a half times as frequent in nonactive as compared with active cases. The occurrence of positive sputa seemed to be associated with less frequent adrenalin reaction than when the sputa was negative (10 per cent and 17 per cent). Tuberculous colitis apparently does not promote adrenalin hypersensitiveness. As the extent of the disease becomes greater, tendency to react to adrenalin apparently diminishes (27 per cent, 15 per cent, 9 per cent).

C. A. SCHMID.

LISSNER, H. H.: **The Whispered Voice Sound, an Aid to Early Diagnosis of Pneumonic Consolidation.** *Medical Record*, Sept. 6, 1919, xevi, 412.

The diagnostic means advocated by the author tend to lessen the strain of examination for pneumonia patients.

Early in an influenza epidemic it was noticed that handling and physical examination increased the danger of serious consequences. And yet it was necessary to diagnose consolidation early.

Auscultation would yield numerous râles of all descriptions at times; at others, none at all. When breath-sounds were exaggerated and when an effort was made to elicit bronchial breathing, a fit of violent coughing was induced.

In the beginning of an influenza case there was liable to be slight impairment of resonance; this was generally distributed over the entire lung area, and small areas of consolidation would escape auscultation.

At the Base Hospital of Camp Pike, Arkansas, it was noticed that bronchophony, that is, a transmission of exaggerated sounds through the bronchi to the chest wall in increased filtration, was a constant symptom.

Whispering was then resorted to; and the whispered voice, counting one to three, and the spontaneous reinflation would show up in sharp outline the areas of patchy consolidation, which were not demonstrated by percussion, and in which bronchial breathing was not determinable. With a simple Bowles' stethoscope the entire lung area could be examined.

Further experiments were made to study the transmission of

sound. In the normal, the whispered voice sound is heard over the same areas in which normal increase of breath-sounds is found, that is, near the hylus of the lung, between the shoulder blades and under the upper end of the sternum. Even over the spine of the scapula and the external occipital protuberance, sound such as is heard in pneumonia was transmitted.

Auscultation is then deemed more important than percussion in pneumonia and one may diagnose by it even in the absence of bronchial breathing and dullness.

However, in confluent bronchopneumonia this method was not found to be satisfactory.

KREMERS, E. D.: **Some Personal Experiences with Epidemic Respiratory Diseases in the Army, with Some Remarks on Methods of Control.** *The Journal of Laboratory and Clinical Medicine*, Oct., 1920, vi, No. 1, p. 25.

Measles has for some time been recognized in the Army as a serious disease, especially where recruits have congregated. When measles occurs sporadically, it is not dangerous, and it is only when a large number of cases occur together, i. e., under epidemic conditions, that the fatality becomes great and the condition serious. It is the "secondary invaders", the streptococci, the pneumococci and other organisms which are present and take on increased virulence in the presence of measles that give us the "virulent measles" and caused us to lose so many young men in Camps. Measles is not easily controlled; it is one of the most contagious diseases, but in the opinion of the author it can be controlled by application of proper principles.

Scarlet fever is more easily controlled than measles, partly because of the shorter incubation period and partly because of the lessened contagiousness. The general measures applied to control measles are applicable to scarlet fever. The value of inspections of the sick men in scarlet fever is striking. Unless one has done this, one must not be surprised to take cases from the companies, well-developed in the disease with the eruption full-blown. We have no specific immunizing agent for scarlet fever, yet it seems that scarlet fever deaths should be largely prevented.

Diphtheria is often a real trial in hospitals and other institutions. Preventive means such as quarantining, culturing of all contacts, throat inspection, and antiseptic details for bedding, clothing, etc., should be closely adhered to.

In influenza the question of quarantining is an interesting one. It was largely used in 1915, in some cases with some success, and was used in some places in 1920. Even the laity have come to realize the inconsistency of locking up the patients of a hospital when influenza is present in a community, while allowing the attending staff to come and go. The important thing is to get the sick away from the well and then the well may take advantage of their ordinary duties and pursuits without the worry of an unnecessary hardship in quarantine. Inspections, even in civil communities, are more than practical. Schools, churches, factories, theaters, business offices, and possibly other places could use this method, if there was a trained personnel available.

Principles of Epidemic Control.—The author states that he has combined his own experience with those of Soper to summarize some definite principles which seem to be sound and of great aid to the practical epidemiologist.

(1) Organization and preparations for epidemics should be made beforehand in as great detail as possible, so that expedients may be ready for application when the epidemic begins.

(2) Epidemics are easy to control when the disease can be attacked at its beginning, but when it has already widely spread, epidemics are extremely difficult to control.

(3) Diseased persons are the sources of great danger in epidemics; things are not generally to be feared.

(4) Direct and obvious channels of infection are much more dangerous than long, roundabout, and mysterious ones.

(5) Sources of infection must be searched for and not awaited.

(6) The early diagnosis of sick persons is necessary to prevent disease spread.

(7) In the military service, inspection of healthy persons is necessary to detect early disease.

(8) Early and strict isolation of possibly infected persons is essential to control the disease.

(9) Early action against disease is much more potent than action, no matter how thorough, at a later time.

(10) Education of individuals enables them to assist in disease prevention.

(11) Separation of individuals lessens disease incidence.

(12) Crowding of individuals contributes to disease incidence.

(13) Proper methods improperly controlled are not effective.

(14) Proven methods of artificial immunization are to be used.

(15) Lack of specific immunization agents for specific disease does not make epidemic control hopeless. Such a lack makes it imperative that every practical method be most thoroughly applied.

C. M. ANDERSON.

YOUNG, W. J.: **Treatment of "Vincent's Angina" by Intravenous Injections of Salvarsan.** *International Medical Clinics*, 1920, i, Series 30, p. 101.

As a result of treatment of 3 cases of this disease with salvarsan, Young concludes as follows:

(1) Salvarsan is the best means of combating the disease.

(2) The lesions of Vincent's angina may be more definitely reached and controlled by intravenous injection than by local application of salvarsan.

(3) The arrest and cure of the disease may be accomplished by small doses of salvarsan intravenously administered, thus making the procedure practically free from danger.

M. KESCHNER.

CONSTANTINESCU, C. D., AND JONESCU, A. **Acute Bismuth Sub-nitrate Poisoning.** *La Presse Medicale*, Feb. 25, 1920, xxviii, No. 16, p. 155.

The author reports a case of bismuth sub-nitrate poisoning, in which the drug was administered preliminary to an x-ray examination.

Poisoning due to this drug has been ascribed to nitric acid which results from the decomposition of the salt in the intestines, and to a chlorid of bismuth which results in some cases from gastric hyperacidity.

Examination of the blood in the case reported showed the presence of nitrates, and the absence of bismuth. Since intestinal irritation favors the absorption of nitrates, the authors believe that the cathartic which is given is the real cause of the poisoning.

In the spectroscopic examination of the blood, the authors found an intermediate band between those characteristic to oxyhemoglobin. They believe that the symptoms in their case were due to the transformation of oxyhemoglobin into reduced hemoglobin and oxyagotic hemoglobin, and not to methernoglobin.

S. KAHN.

CRAMER, A., AND SCHIFF, P.: **Starvation-osteomalacia** (L'Osteomalacie dite de famine). *Review medicale de la Suisse Romande*, Nov., 1920, A. N., No. 11, p. 746.

A well-to-do Swiss lady, having been married in Russia, was exposed to famine during the years of 1917-1919.

The only item of interest in the patient's history had been rickets in infancy, and typhoid fever when she was fourteen years old. She married when she was twenty-five, and had 10 children without further disease, 7 of her children being alive and strong. In the spring of 1918 she suffered from edema, her face and limbs being swollen. No albumin was found. This was soon cured in a hospital. In September, 1919, all her bones hurt; the knees feeling ankylosed; every movement hurt; the vertebrae were very sensitive; the thorax became soft and hurt on deep respiration. The spine became more and more painful, especially in the sacral region, even when she was lying down. Defecation caused pain in the back. The patient felt a bend in the back and her associates noted that she was growing smaller; she was, in fact, obliged to shorten her skirts. Walking became more and more painful. She tried crutches, but abandoned them because they hurt. The slightest movement became painful. Although she had lost considerable flesh, her appearance was more feeble than emaciated.

On returning to Switzerland the patient was soon much improved, only indigestion remaining. On examination hemoglobin and blood content were found to be normal, and the main feature of physical examination was abnormal transparency of the bones in the radio-

gram, and their softness to touch. The sacrum and vertebræ were most sensitive, as were the long bones especially at the inferior epiphyses.

Austrain and German clinicians have seen, especially in the latter part of 1918, very many cases, the situation being somewhat like an epidemic. Food was probably then at a minimum. From 75 to 80 per cent occurred in women who had entered menopause. Some young girls, however, were also afflicted.

Sensitive ribs, especially the seventh and eighth, being involved, a characteristic gait; viz., very small steps, with a dragging of the external border of the feet, and waddling, were noticeable. They were unable to get into the street car unassisted. In severe cases there was excruciating pain in the spine and sacrum and incapability of moving out of bed; also the sternum became soft and elastic. Rich food usually soon changed all these symptoms. Some doctors added calcium and phosphorus to their therapeutics with good effect.

HURST, A. F.: **Hysterical Vomiting.** *New York Medical Journal*, Jan. 10, 1920, cxi, p. 45.

Hurst, whose experience with the war neuroses has been very extensive, defines hysteria as a condition in which symptoms are present which have been produced by suggestion and are curable by psychotherapy.

With this conception of hysteria he began to look for cases of hysteria in the medical and surgical wards of hospitals among patients whose disabilities had been considered organic in nature. Among other discoveries he noticed the remarkable frequency of hysterical vomiting. As every type which he met had its counterpart in civil life, a description of the origin of these cases and of the successful treatment which he gradually worked out may be of interest even now that the war is over.

Etiology.—In every case the hysterical vomiting was suggested by the existence of some form of vomiting which was not in itself hysterical. Every variety of nonhysterical vomiting may be perpetuated and exaggerated by suggestion after its original cause has disappeared.

He classifies the causes of vomiting as: (1) local; (2) reflex; (3) toxic; and (4) central.

(1) *Local Vomiting*.—This group includes vomiting due to irritation of the stomach. The irritant produces a varying degree of gastritis, which is accompanied by vomiting, the object of which is the expulsion of the irritant which produced the gastritis. In civil life these forms are commonly met with in cases of food-poisoning. In a large number of his patients who had been gassed, the irritant gas called forth an abundant secretion of saliva, which was swallowed. The vomited material contained an abundance of mucus with traces of blood in the first two or three days; the fatal cases which came to autopsy showed the presence of an actual gastritis. In the vast majority of cases, both in civil life and during the war, the vomiting stopped after two or three days, or, at the latest, by the end of a week. In rare cases the acute gastritis was followed by chronic gastritis. Hurst, therefore, believes that if vomiting persists for more than two weeks after the onset, it is no longer a direct result of the gastric irritation, but is due to the perpetuation of the symptom by suggestion, and that therefore, it is hysterical, and should be quickly cured by psychotherapy and not by restricted diet, gastric lavage or drugs.

Numerous cases of hysterical vomiting after gassing had already been in other hospitals for many months before Hurst saw them, and, although no other symptoms were present and the vomitus contained nothing abnormal, the condition had been diagnosed as gastritis, gastric or duodenal ulcer. One patient had even been subjected to a gastro-enterostomy. Without exception all these individuals recovered promptly under psychotherapy, and were able at once to take ordinary food and lead a normal life, in spite of having been previously confined to a restricted and often purely fluid diet.

According to Hurst, the constant vomiting so commonly met with in anemic young women, and which is usually considered a symptom of ulcer of the stomach, is in most cases due to hysteria. The vomiting in these cases is more frequent than in gastric ulcer, except when the latter has led to pyloric obstruction. The onset can generally be traced to some acute attack of gastric irritation caused by food-poisoning, followed by vomiting which, instead of ceasing within a day or so, continues indefinitely as a result of autosuggestion. Dieting seems to have no effect on these cases, a striking feature of which is the absence of wasting. As soon as these patients are taken away

from their own home and put in a hospital on a full diet, the vomiting ceases. If the patient continues to vomit, the same diet must be repeated, until she stops vomiting. At the same time the tenderness over the epigastrium, which is probably the result of the suggestive effect of numerous abdominal examinations, disappears spontaneously. It seems probable that many cases of persistent vomiting following operations are purely hysterical, and the well-known beneficial effects of gastric lavage in such cases may be more the result of suggestion than of the washing out of the mucus or other irritating materials from the stomach. In one of Hurst's cases vomiting caused by an attack of dysentery in infancy was perpetuated as hysterical vomiting and persisted until it was treated by rational psychotherapy six years later.

(2) *Reflex Vomiting*.—By reflex vomiting the author means vomiting reflected from some organ other than the stomach. The most common varieties are due to disease of the abdominal organs or tuberculosis. In some of Hurst's cases the vomiting had been greatly exaggerated as a result of autosuggestion, and in others the vomiting had persisted after the patients had completely recovered from the original disease. Hurst had found that psychotherapy has a strikingly beneficial effect in cases of vomiting due to phthisis; after treatment the patients, instead of vomiting after every meal, vomited only once or twice a week, with consequent improvement of the general nutrition.

In a number of cases in which general abdominal discomfort was present and the exact condition could not be definitely diagnosed, the associated vomiting was almost completely relieved after psychotherapy. It was then found that the very infrequent vomiting which still persisted was due to chronic appendicitis. When the appendix was removed the vomiting finally ceased. On the other hand, Hurst had seen many cases in which appendectomy had been resorted to and the patient still vomited. The persistent vomiting was hysterical and removable by psychotherapy. Hurst remarks that when the possibility of the association of hysterical vomiting with other symptoms of chronic appendicitis, gall-stones, gastric and duodenal ulcer, etc., is recognized, and psychotherapy instituted, disappointing results of operations will be much less frequent.

Seasickness is another variety of reflex vomiting, the reflex arising in the semicircular canals. Normal persons vary greatly in the

irritability of their semicircular canals, consequently some people vomit much more readily than others when at sea. In most cases the tendency to seasickness is absent in infants, and in some it diminishes during a long voyage and also with advancing age. Hurst believes it is extremely common for poor travelers to develop into still worse ones as a result of autosuggestion. The most extreme case he has seen was that of an old lady who began to vomit in the train to Dover, on her way to Europe, although she was never seasick at any other time. Psychotherapy, by encouragement and explanation, will often prevent a passenger from being seasick, although he may be convinced from previous experience that he cannot stand a sea trip. Gross suggestion may be equally successful.

(3) *Toxic Vomiting*.—The most common example of toxic vomiting is the vomiting in certain acute infections, such as scarlatina and influenza. If vomiting persists after recovery from the infection, it is in all probability hysterical.

The so-called pernicious vomiting of pregnancy, which has generally been considered to be toxic in origin, is, in the author's opinion, invariably hysterical. The physiological vomiting during the first few weeks of pregnancy may be reflex or toxic in origin, but if it persists for any length of time after this, its perpetuation is due to autosuggestion, and can invariably be cured by psychotherapy. The chemical changes in the urine, indicating acid intoxication, and the other supposed evidences of toxemia, are entirely due to starvation from the severity of the vomiting, as these symptoms disappear as soon as the vomiting is cured by psychotherapy.

(4) *Central Vomiting*.—There is a variety of central vomiting due to organic nervous disease such as cerebral neoplasm or meningitis. This type is of no importance in connection with hysteria. A more important variety of central vomiting, however, is one which manifests itself as the physical expression of an emotion, such as fear or disgust. This vomiting, although emotional and nervous in origin, is in no way hysterical, inasmuch as it is not produced by suggestion. Its persistence, however, after the emotion has ceased to exist, is due to autosuggestions, and is therefore hysterical and curable by psychotherapy. In all of these cases a careful history will elicit the fact that the vomiting began immediately after some emotional crisis.

SYNWOLDT, I.: **Eosinophilia in Muscular Rheumatism** (Zur Eosinophilie bei Muskelrheumatismus). *Munchener medizinische Wochenschrift*, Jan. 23, 1920, No. 4, p. 98.

Bittorf of Breslau reported an eosinophilia in muscular rheumatism. The author investigated this finding in 30 cases, 19 of which were acute. Most of the cases had symptoms referable to the shoulder girdle or lumbar region. Those patients suffering from skin diseases, asthma or other conditions tending to produce an eosinophilia were naturally eliminated from this study. Of the 19 acute cases 79 per cent presented an eosinophilia. The maximum was 22 per cent. Three cases only had a normal count. In the chronic cases no eosinophilia was found, but a relative lymphocytosis with a large mononuclear leukocytosis was discovered. The eosinophilia is probably due to decomposition products of muscle break-down, such as occurs in trichinosis and acute polymyositis. The author thinks that in the presence of the eosinophilia, one has a differential point in the diagnosis of neuralgia and myositis.

H. JOACHIM.

NEUMANN, J.: **A New Diagnostic Method in Scarlet Fever** [Phenomenon of Blanching of the Rash] (Das Ausloschphänomen, ein neues brauchbares Hilfsmittel bei der Diagnose des Scharlachs). *Deutsche medizinische Wochenschrift*, May 20, 1920, No. 21, J. 46, S. 566.

This method is based on the therapeutic experiments of Schulz and Charlton, who found that after the intracutaneous injection of serum from a convalescing scarlet fever patient into a patient suffering from this disease, the rash in the neighborhood of the injected area at first became pale and later completely disappeared. This did not occur when the patient had simply a scarlatiniform or any other confluent eruption. These authors also found that serum taken from a scarlet fever patient *at the height of the disease* did not produce this phenomenon, whereas serum taken from a scarlet fever patient during convalescence, or normal serum or serum from a patient ill with any other disease, caused a characteristic "blotting out" of the scarlet fever rash in the region of the injection.

To confirm these findings, and to determine their value in the differential diagnosis of scarlet fever, Neumann obtained under aseptic precautions blood from the veins of children in the ward of the Hamburg Municipal Hospital, and after the sera had separated from the blood plasma, the former were inactivated for one hour at 56° C. (132.8° F.) and poured into sterile ampules containing 1 c. c. each, which were hermetically sealed and ready for use in the wards. The sera were injected intracutaneously (not subcutaneously) into various parts of the body of patients ill with scarlet fever and other exanthemata. Neumann found that in every positive case of scarlet fever the injected areas became blanched in from 6 to 8 hours after the injection and remained so until the entire scarlet fever rash had disappeared. No untoward effects were observed in his 200 injections.

Schulz's and Charlton's findings that the serum of early scarlet fever has a specific peculiarity, in that it does not produce this phenomenon (of blanching of the eruption) in true scarlet fever, was also found to be correct in the course of the author's experiments.

M. KESCHNER.

UNDERHILL, B. M.: **Present Status of Rabies.** *New York Medical Journal*, Sept. 4, 1920, cxii, p. 323.

Underhill recalls that while the presence of Negri bodies is proof positive of rabies, failure to find them does not warrant a negative diagnosis. If an animal has exhibited symptoms of rabies, treatment should be administered, although the material submitted for examination shows neither Negri bodies nor ganglion changes. (As a result of his laboratory experience, the author concludes that in all cases submitted for diagnosis the ganglion nodosum should be preserved, and in the event of negative brain findings, examined. If the sectioned ganglion shows diffuse or localized proliferative changes, it warrants a diagnosis of rabies). In the absence of Negri bodies and ganglion changes if the animal has shown changes in disposition, expression and voice, a tendency to roam, an unusual disposition to bite or partial drooping of the lower jaw, the individual who has been bitten should be given the benefit of the doubt and treated for rabies.

If a person has been bitten by an animal, and the animal is securely confined so that it can do no further harm, it should not be killed unless it is definitely rabid. If killed before or during the initial symptoms it is probable that changes in the central nervous system will not have had time to develop; laboratory investigation can, therefore, be of no assistance in removing the uncertainty. If the confined animal lives and remains normal, Pasteur treatment of the bitten person will be unnecessary. If rabies develop in the animal within eight or ten days following the bite, treatment of the bitten person is advisable because the saliva may already have become infective. The confinement and observation should extend over a period of at least two weeks. Dogs, as a rule, die in a few days from the onset of the symptoms.

While the period of incubation is in any case of natural infection far from exact, clinical experience has demonstrated that this period is shortened relative to the proximity of the seat of inoculation to the brain. Face bites, therefore, call for more prompt and intensive antirabic treatment than those upon the hand or leg, in order that immunity may be established before the incubation period has expired.

M. KESCHNER.

DEPARTMENT OF AGRICULTURE: **Botulism** (Protective Measures and Cautions from the U. S. Bureau of Health). *Public Health Reports*, Feb. 13, 1920, xxxv, No. 7, p. 327.

Fatalities due to botulism have been traced mainly to the consumption of ripe olives packed in glass, and in some cases to home-canned string beans, asparagus, or corn. The process of sterilization employed in the cases of olives packed in glass is usually inadequate. It consists usually in heating the jars for about half an hour at the temperature of boiling water (212° F. [100° C.]), which is not sufficient to destroy the *Bacillus botulinus*, if present. It would therefore seem wise for the present to abstain from eating ripe olives packed in glass. No food of any description showing even the slightest unnatural odor, or color, smelling of the container, signs of gas or any evidence of decomposition whatever should be used for food purposes. In practically every case of botulism the food was shown to

have had an offensive or abnormal odor. While spoiled food does not necessarily contain the *Bacillus botulinus*, any spoiled food, even though the spoilage be slight, may contain it. In view of the fatal effect of very small amounts of the toxin, the only safe rule is to examine very carefully all food products before they are served and to discard those that are even slightly suspicious. Olives are not more likely than many other food products to contain the *Bacillus botulinus*. It was formerly more commonly found in string beans, asparagus, etc. It was originally found in sausage. It has been found in cheese, and sometimes in moldy hay or other kinds of spoiled forage. It has never been found in the Bureau of Chemistry's investigations in any kind of food that was not spoiled.

J. B. NEAL.

MACCARTY, W. C., AND CORKERY, J. R.: **Early Lesions in the Gall-bladder.** *American Journal of the Medical Sciences*, May, 1920, elix, Part 5, No. 578, p. 646.

This is a summary of the findings of 4998 gall-bladder cases at the Mayo Clinic between 1913 and 1919, and includes photographs of the pathological lesions present. The early changes in the gall-bladder consist of:

(1) Congestion and edema of the villi with a bulbous appearance, occasionally cystic. As congestion advances the mucosa becomes infiltrated with lipoid material and resembles fish scales.

(2) Local or general lymphocytic infiltration producing slight enlargement of the villi.

(3) Local or general lymphocytic infiltration into the submucosa, muscularis, and subserosa producing a thickening of the bases of the villi.

(4) Fibrosis in the villi extending into the submucosa, muscularis, and subserosa.

(5) Finely granular lipoid deposits in the epithelium and mucosa.

(6) Large spheroidal cells filled with finely granular lipoid substances in the mucosa, and submucosa giving the characteristic "strawberry type".

PAULY, R: **A Dorsal Point of Tenderness in Hepatic Colic.** *Lyon Medical*, June 25, 1920, cxxix, No. 12, pp. 517-523.

In hepatic colic, as in all analogous conditions, there is both subjective pain and objective tenderness. The former is usually varying in character, intensity, location and radiation, and is consequently not of great diagnostic value. Radiation of the pain has been described as follows:

- (1) To the shoulder—right usually.
- (2) To the subclavicular region.
- (3) To the subdeltoid region.
- (4) To the submammary region.
- (5) To the right scapula.
- (6) To the spinous processes of the eighth, ninth, tenth, eleventh, dorsal vertebræ.

The radiation of the pain, however, is a purely subjective symptom, and does not correspond to a direct point of tenderness of the painful area, in most cases. In hepatic colic, there are only two characteristic points of tenderness hitherto described. One is in the epigastric region, the other over the gall-bladder. Since the abdominal pain is often very intense, it is difficult to elicit pain on pressure at these points definitely.

In 21 cases of hepatic colic which the author and Allegret studied, they found a definite and characteristic point of tenderness in the area included between the spinous processes and the spinal border of the right scapula, on a level with the fourth or fifth right intercostal space, 2 or 3 cm. from the spine. The best method for eliciting this sign is as follows: The patient is seated on the bed. Pressure is exerted over the intercostal spaces between the vertebral column and the scapula, going from below upward. On reaching the fourth or fifth space, the patient will complain of severe pain. Control pressure should be made on the left side also. Some patients complain of pain there too, but the pain on the right side is definitely more intense. The intensity of the tenderness varies with the violence of the colic.

In 3 cases of gastric ulcer, in 1 of duodenal ulcer, in 1 of acute appendicitis, in 1 of catarrhal jaundice, in 2 of Laennec's cirrhosis, and in 1 of secondary carcinoma of the liver, this sign was absent.

S. KAHN.

STRAUSS, H.: Subacute Liver Atrophy With Ascites (Ueber subakute Leberatrophie mit Aszites). *Berlin klinische Wochenschrift*, June 21, 1920, No. 25, p. 583.

Strauss reports the following case: The patient was a twenty-five-year-old singer. His previous history was negative except for a lues which was serologically established about four and a half months previously. In the course of three weeks he received about 1.8 grams (27.776 grains) of neosalvarsan. On his discharge from the hospital his Wassermann reaction was still strongly positive. This was followed by a course of calomel injections. About two months later the patient began to complain of weakness, vertigo, eructations, anorexia and vomiting followed by jaundice. His abdomen began to swell and his feet became edematous. He then complained of indefinite pains in the upper part of his abdomen. In the beginning he noticed that his stools were clay colored, but later they became dark again.

Physical examination showed an icterus with edema of the lower extremities and ascites. His systolic blood-pressure was 125, and his temperature was 38.3° C. (101.41° F). The liver and spleen were not palpable. The urine contained bile pigment, urobilin, and urobilinogen. Albumin, hyalin and granular casts were present. Leucin and tyrosin were repeatedly looked for but were never found. The abdomen was tapped twice. The last tapping gave about 8 liters (16.9 pints) of a straw-colored fluid with a gravity of 1013. Rivalta's reaction was positive. An x-ray examination after a pneumoperitoneum revealed an uneven lobulated liver surface with a sharp margin. After paracentesis a nodular liver surface was palpated. The patient's temperature fluctuated between 38° C. and 39° C. (100.4° F. and 102.2° F.). He became progressively more somnolent and drowsy, finally developed coma and died.

Post-mortem.—The liver weighed 1314 grams (2.64 pounds). The left lobe showed yellow nodules separated by red streaks. On the under surface of the left lobe there was a nodule measuring 6 cm. by 2 cm. The gall-bladder contained 50 c. c. (1.69 fluidounces) of viscid bile. The capsule of the spleen was thickened. Microscopy showed round cell infiltration, hemorrhage and cicatricial tissue deforming the liver lobules. The peritoneum was smooth and shiny. There were no other evidences of syphilis. The lungs gave

evidences of tuberculosis. One of the liver nodules on microscopical examination showed the presence of the tubercle bacillus.

The author has seen 5 other cases of grave liver disturbances following early in the course of lues. His experience is similar to that of Herxheimer who reported a series of 10 cases. Neither of these authors thinks that the injections of salvarsan are responsible for the condition, for it never developed in late lues intensively treated in the same way.

H. JOACHIM.

MOORE, F. D.: **The Precancerous Stage.** *Illinois Medical Journal*, 1921, xxxix, No. 1, p. 34.

A large number of conditions, definitely nonmalignant in themselves, are known to be forerunners, in many cases, of true malignancy. Among these are: xeroderma-pigmentosa, chronic dermatoses from exposure to light, x-ray, etc., pigmented nevi or moles, lupus vulgaris and erythematosis, chronic scaly lip, fissures of lip, keloids of the skin, leukoplakia, luetic scars, wounds from jagged teeth on the tongue, luetic strictures, strictures of the esophagus from injury, caustics or other causes, peptic ulcers of the stomach, chronic inflammation and diarrhea of the intestines, fissures, hemorrhoids, polypi, chronic symptomatic diarrhea of the rectum, chronic cholecystitis and gall-stones, chronic pancreatitis and pancreatic calculi, chronic endometritis, hyperplasias of various origin, lacerations of the cervix and hydatid mole of the uterus, chronic mastitis and chronic eczema of the nipple.

They are a fertile soil and the unknown factor may stimulate these lesions to rapid carcinomatous growth. The author proposes a prophylaxis against carcinoma in these cases. In 60 per cent of cases gastric cancer has been preceded by chronic gastric ulcer. Removal is advocated, before these ulcers can become cancers.

There are precancerous conditions plus trauma; for instance, wounds of a leukoplakia of the tongue caused by the teeth, incomplete surgical removal of ulcers, polypi, etc., misplaced and undeveloped organs, such as are found in supernumerary breasts, undescended testicles, etc., plus trauma. A benign or minute malignant tumor may be present in the tissue before injury. Aberrant cell-groups, which

in their original state are quiescent, for instance, in pigmented moles, may develop into cancer. So may normal cells, plus trauma, plus predisposition.

Dr. Smithies has studied 543 cases of operatively demonstrable gastric ulcer and 953 of gastric carcinoma.

In 66 per cent of gastric carcinoma there was a chronic dyspeptic history of the type commonly associated with gastric ulcer preceding the period of malignancy.

In 9 per cent there was a history of dyspeptic disturbances, corresponding to the "atypical" ulcer type known previous to development of malignancy. Thirty-five and seven tenths per cent of malignant gastric disease appeared without previous gastric disturbance.

The average duration of all symptoms of benign gastric ulcer was eleven years, that of the clinically non-malignant dyspeptic period of "ulcer", later showing malignancy, was ten and eight tenths years. In this last group, the clinically malignant period in which carcinoma followed ulcer, it was six months. The average duration of those 337 cases clinically malignant from their onset was seven months.

LOEB, L.: **Causes and Definition of Cancer.** *The American Journal of the Medical Sciences*, June, 1920, clix, Part 6, No. 579, p. 781.

Cancer is abnormality of growth. Primarily it is a disturbance in the equilibrium of the individual, not through toxins, but through an increased proliferative activity of the cells which is usually associated with an increased motility. The following factors may enter as causes:

I. *External Stimulation.*—Traumatism is known to produce cancer in man. The favorite seat of cancer in cattle is the inner canthus of the eye, caused by lodging of irritating foreign bodies. Sarcoma and carcinoma may be produced on the tails of rats by the application of roentgen rays. Cancer of the tongue can be produced by feeding rats irritating material. Tar has developed carcinomata in the skin of rabbits' ears.

II. *Internal Secretion.*—Experiments have shown lack of success in the attempt to cure cancer of the mammary gland by castration; cancer is as frequent in castrated cattle as in the non-castrated;

in castrated mice, inoculated tumors grow in a manner not very different from that observed in normal control mice. Yet the author feels that none of these facts disprove the significance of internal secretion in the development of cancer.

III. *Heredity*.—Hereditary tendency depends upon other contributing factors, such as changes in the mode of living, type of race, and freedom from diseases which may predispose to cancer. Divergences in the hereditary cancer rate which originally would be quite noticeable might have been obscured through constant intermarriages.

IV. *Disturbances of Embryonal Development*.—Embryonal tissues may begin to develop under abnormal conditions, being exposed to adnormal stimuli, and they may be transformed into cancer. Their constitution is complex. Teratomata owe their origin to pathogenetic development of ova, or they are due to aberrant blastomeres.

V. *Age*.—This is of subsidiary significance in the etiology; it depends upon the length of the period of continued stimulation of physical or chemical stimuli. Cancer may appear in young individuals and is especially noted in transformation of embryonal into cancerous tissue.

VI. *Contact*.—Contact of normal with cancerous tissue may cause the transformation of the former into cancerous tissue. It is probably an instance of the stimulating effect which one tissue may have upon another normally. It has been observed in the case of spontaneous tumors of man and animals as well as in transplanted cancers.

VII. *Microörganisms*.—The possible significance of microörganisms in causing cancer is denied by the majority of pathologists. No unicellular microörganisms have been found in cancer. Injections of any known microörganism do not produce cancer.

A. T. MAYS.

RACKEMANN, F. M.: *The Relation of Sputum Bacteria to Asthma*.
Journal of Immunology, July, 1920, v, No. 4, p. 373.

It is not recognized that asthma is a symptom complex which depends upon one or the other of two great groups of causes: either the cause is a foreign protein which exerts its influence from outside the body—"extrinsic"—or it produces its effects from some

focus, usually of bacterial growth and action within the body—"intrinsic". The treatment of this last group consists either in eradicating the focus by surgical means, or in the use of autogenous vaccines, or both. Usually the focus of infection cannot be located; it is, therefore, assumed that chronic infection of the bronchi is responsible for the asthma, and autogenous vaccines are prepared from the sputum.

In order to place the vaccine therapy of asthma on a more definite basis the following study was undertaken in 40 cases of asthma. A nugget of sputum was planted on a blood-agar plate, the colonies were then transferred to a second blood-agar plate, and from here transferred to dextrose broth. The twenty-four-hour broth culture was next washed three times with saline containing 0.5 per cent of carbolic acid, was finally suspended in the same, and was killed by heating to 56° C. (132.8° F.) for one hour. The vaccines thus made were diluted so that each should have the same degree of cloudiness, as a suspension containing in 1 c. c. 500,000,000 bacteria. One hundred and twenty-nine organisms were isolated in this way. They were:

77 Non-hemolytic streptococci	60%
17 Hemolytic streptococci	13%
17 Staphylococcus albus	13%
7 Gram-negative cocci	6%
5 Staphylococcus aureus	
3 Pneumococci	
2 Gram-negative bacilli	11 others 8%
1 Diphtheroid	

With pure vaccines made from these organisms, intradermal tests were performed in the usual manner, about 0.02 c. c. of the carbolized bacterial suspension being injected. The tests were controlled by simultaneous injections of heterologous vaccines placed alternately with the autogenous. They were also controlled by injection into other patients.

The early reading of the tests was made in one-half hour and the late reading in twenty-four hours. Positive early tests were found to consist of an urticarial wheal surrounded by erythema much like the usual tests to pollens, but positive late tests were found to resemble an inflammation with its area of redness, swelling and slight tenderness. In the interpretation, the comparison of each test with

its fellows was considered to be of far greater importance than any actual measurement of its size.

Of the three hundred and fifty-eight individual intradermal injections in the whole series of 56 patients, there were seventy (19.5 per cent) which were classed as positive. This 19.5 per cent includes 7.5 per cent which were early positives, 7.2 per cent which were late positives, and 4.8 per cent which were positive both early and late. Thus the occurrence of positive tests was by no means limited to autogenous vaccines, nor, except in one case, were more tests obtained with one organism or group of organisms than another.

Treatment of these patients was carried out with small doses of pure vaccines given at seven-day intervals, each succeeding dose being regulated according to the amount of local reaction from the previous dose. Any successful results appeared usually after five or six treatments, although in many of the unsuccessful cases as many as twelve or fifteen treatments were given. The word "successful" is here used to denote definite improvement in the subjective and objective signs and symptoms. It includes only 2 instances of virtual cure.

It was found that treatment was successful in fairly close accordance with the presence of a positive skin-test. Ten patients who gave a positive test to their own organism were treated with this organism, all of them with success. Six patients were treated with a heterologous organism, four with success. In the face of a negative test, 10 others were treated, 8 with their own organism and 2 with a heterologous organism, but with no success whatever. The distinctions in prognosis between an early and late test were found to be unimportant. Good results in treatment were obtained after both; in fact, of the 2 patients who were "cured", one gave an early, while the other gave a late test.

The permanency of the favorable results obtained is yet to be discovered, but most of these patients have retained, at least during the seven months of observation, the result which followed the treatment as given.

We know that in horse asthma and ragweed pollen asthma, the symptoms depend upon an exquisite sensitiveness to the particular foreign protein. Inasmuch as circulating antibodies are not found, we assume that this condition of sensitiveness is cellular. The spe-

cific protein will produce a positive skin-test and repeated injections will cause relief of symptoms. This treatment is specific.

In intrinsic asthma vaccines likewise produce a positive skin-test, and, as treatment with them is successful only in case the test is positive, their action is "specific". By analogy we may assume that asthma due to bacteria depends probably upon a condition of specific cellular sensitiveness either to the bacteria themselves or to the products of their action in the organism.

W. LINTZ.

GETTLER, A. O., AND LINDEMAN, E.: **Blood Chemistry in Pernicious Anemia.** *Archives of Internal Medicine*, Oct., 1920, No. 4, p. 453.

Eighty-seven analyses of the blood chemistry in 32 cases of pernicious anemia are analyzed in this paper. It was found that the uric acid is uniformly and sometimes strikingly increased. Urea is often somewhat above normal, the highest urea-N. figure being 75 mg. per 100 c. c. Creatinin was frequently found higher than normal. The increase in these factors is ascribed to the decreased amount of circulating blood, rather than to kidney insufficiency. The non-protein nitrogen was frequently increased, the increase being largely due to an excess of amino-acid, and to a lesser extent to urea, uric acid and creatinin. The increase in the amino-acid content is said to be due to excessive protein destruction. The blood sugar was found to be high and the alkaline reserve low, because the oxidizing power of the body is reduced in pernicious anemia. The refraction and specific gravity were both very low, indicating deficiency in serum albumin, serum globulin and fibrinogen. The freezing point was normal or slightly raised.

T. HOWARD.

SECTION ON LABORATORY AND RESEARCH

HOLMES, A. D., AND DEUEL, H. J.: **Digestibility of Certain Miscellaneous Vegetable Fats.** *Journal Biological Chemistry*, 1920, xli, p. 227.

Results of previous studies and of those reported in the paper indicate that the coefficient of digestibility of the fats having melting points above body temperature (37° C. [98.6° F.]) varies inversely with the melting point. Most of the common oils are from 93 to 98 per cent utilized by the human body, but some oils are found to cause digestive disturbances and some are tolerated with less ease than others. Hence it is impossible to state whether an oil or a fat is suitable for human use until we know not only its coefficient of digestibility but also its effect on the human body when eaten in quantities equal to those in which butter or common fat are used in the ordinary dietary. The paper reports the digestibility of avocado and cupassu bean fats and cohune, hemp seed, palm kernel and poppy seed oils.

The digestibility coefficients obtained were: avocado fat, 87.9 per cent; cohune oil, 99.1 per cent; cupassu fat, 94.1 per cent; hemp seed oil, 98.5 per cent; palm kernel oil, 98.0 per cent; and poppy seed oil, 96.3 per cent. The digestibility of the protein and carbohydrate of the entire ration indicated that the fats exercised not unusual effect on the utilization of these constituents. All except cupassu, which caused slight disturbances, produced no abnormal physiological effects and may be regarded as satisfactory for food purposes. Cohune, hemp seed, palm kernel and poppy seed oils are especially highly utilized by the human body.

W. H. EDDY.

CECIL, R. L., AND BLAKE, F. G.: **Studies on Experimental Pneumonia. V. Active Immunity Against Experimental Pneumococcus Pneumonia in Monkeys Following Vaccination With Living Cultures of Pneumococcus.** *The Journal of Experimental Medicine*, June 1, 1920, xxxi, No. 6, p. 657.

The experiments included in the study are divided into two groups: (1) Vaccination with the living virulent culture of pneumococcus, Type I; and (2) vaccination with a living avirulent culture of pneumococcus, Type I. Two species of monkeys were used and the inoculations consisting of fresh cultures were given subcutaneously.

The subcutaneous injections of small doses of living pneumococcus Type I were found to stimulate an active degree of immunity sufficient to protect against experimental pneumococcus pneumonia of homologous type. Larger doses of the avirulent pneumococcus given subcutaneously likewise rendered the monkeys immune. The monkeys vaccinated with the virulent pneumococci developed pneumococcus bacteremia with a severe constitutional reaction in some instances and less severe reactions in others. Serum taken from monkeys twenty days after vaccination was found to protect mice against 1,000 times the minimum lethal dose of pneumococcus Type I. The active immunity produced by the vaccine appears to be independent of the presence of agglutinins and protective bodies in the serum of the monkey. The monkeys showed also a certain degree of cross-immunity. The animals vaccinated with the living avirulent organism developed no bacteremia and no severe reactions even after large doses. Where large enough doses were administered, the same degree of immunity was developed as in the cases in which the living virulent organisms were injected.

H. M. FEINBLATT.

CARTER, W. S.: **The Effect of Ether Anesthesia on the Alkali Reserve.** *Archives of Internal Medicine*, Sept., 1920, xxvi, No. 3, p. 319.

The effect of ether anesthesia, without the complicating factors of disease, hemorrhage or shock, was studied on dogs by Carter.

The results are the more significant as it is extremely difficult to produce the condition known as acidosis in dogs, even by injecting large amounts of mineral acid into the circulation. Carter found that ordinary ether anesthesia caused a distinct decrease in the alkali reserve. The decrease in carbon dioxid combining capacity in dogs is usually from 6 to 10 volumes per cent. There is comparatively little diminution during the first hour, but it occurs almost entirely after that time and is in direct proportion to the duration of the anesthesia.

The decrease occurs when the anesthesia is maintained by artificial respiration which provides a uniform respiratory volume, as well as when the animal breathes an atmosphere containing 3 per cent of carbon dioxid in which ether has been vaporized. It is therefore not an apparent condition due to hyperpnea, but an actual decrease in the alkali reserve. Breathing an atmosphere containing 16 per cent of oxygen and 3.5 per cent of carbon dioxid, but no ether, does not diminish the alkali reserve. The greatest decrease in the alkali reserve produced by ether anesthesia occurs at the end of anesthesia and remains at that level for from one half to one hour after the anesthesia, at a time when there is a decreased respiratory activity. Following this brief after-effect, there is a rapid increase in the alkali reserve and it returns to the normal in from one to two hours after the anesthesia.

T. HOWARD.

MILLER, R. J., BERGEIM, O., REHFUSS, N. E., AND HAWK, P. B.: **Gastric Response to Foods. X. The Psychic Secretion of Gastric Juice in Normal Men. XI. The Influence of Tea, Coffee and Cocoa upon Digestion.** *American Journal of Physiology*, 1920, lii, pp. 1 and 28.

Psychic Secretion of Gastric Juice in Normal Men.—The present paper is a contribution toward determining the relative importance of the various factors involved in the appetite stimulation of gastric secretion, as well as toward estimating the influence of the appetizing or unappetizing character of a meal and of the mental attitude of the subject upon the gastric response and the ultimate digestion of food. Following the appetite stimulation in each case, the stom-

ach was emptied at regular intervals by use of a Rehfuß stomach tube, the volume of secretion determined as to its free and total acidity, its pepsin and amino acid nitrogen. The results of the experiments conducted follow:

The sight alone of a table well set with nourishing foods gave rise to a distinct secretion of gastric juice in normal men. The sight of half a grape fruit likewise resulted in an appetite secretion, while sight of the same foods illy prepared and poorly served gave no stimulation of appetite secretion. The service of a well-prepared one gave in some cases a distinct secretion, in others none. Odor alone produced less stimulation than sight alone. Odor alone of frying meat varied from no stimulation to a slight secretion. Tasting and chewing of food in the absence of smell or sight produced no marked psychic secretion. The combined influence of tasting, chewing and smelling of food was pronounced and much greater than that of smell alone.

Sound and thought alone of a frying steak gave rise to a gastric secretion which smell and hearing increased only slightly. Evil odors depressed secretion to a level of the continuous secretion.

In consecutive tests the sight of food, with and without odor, produced similar degrees of stimulation while taste alone had less effect.

Mixed meals of nourishing ingredients but very unpleasantly prepared and served gave rise in the case of a phlegmatic individual to no distinct delay in the development of intragastric acidity or in evacuation. A more susceptible individual showed a slight delay in evacuation time but none in the acid response. Chinese preserved eggs, unpalatable to the subjects in appearance, odor, taste and belief in their unwholesome character, led to delayed acid response and evacuation. In one case the normal acid level was ultimately attained due to chemical stimulation. In one subject a strong prejudice against eggs was found not to result in any abnormal gastric response when eggs were eaten.

The ultimate utilization of the protein of a diet prepared in a most unpalatable manner was not found to be appreciably less than that of the same diet served under the best conditions.

Newspaper reading during the course of a meal could not be shown to have any distinct influence on gastric digestion. Anxiety and mental strain were found markedly to delay gastric digestion.

The Influence of Tea, Coffee, and Cocoa upon Digestion.—A

study was made of the influence of water, tea, coffee and cocoa upon the gastric digestion of a uniform mixed meal as measured by the acid responses and evacuation times. Evacuation of the stomach was not appreciably delayed by the drinking of one liter of cold water, cold or hot tea, hot coffee, either plain, with cream or with cream and sugar. The addition of sugar alone to coffee delayed evacuation. Cocoa in one liter quantities markedly delayed evacuation. This was true to a less extent in half liter volumes. One liter quantities of water, hot or cold tea, hot coffee, plain or with cream, delayed somewhat the rise of the level of intragastric acidity as compared with the basal meal alone. As high acidities and normal evacuation were, however, attained, these beverages must have stimulated gastric secretion and probably were rapidly evacuated. Coffee with sugar alone delayed the development of gastric acidity. Coffee with sugar and cream had less effect. Cocoa delayed distinctly the development of intragastric acidity.

One liter quantities of tea and coffee gave rise to marked acceleration of the heart beat, to vasomotor relaxation, tremors and other nervous symptoms. Cocoa did not produce these effects but brought about a feeling of fullness at the stomach.

Urine secretion during the first ninety minutes after tea or coffee ingestion varied from 550 to 866 c. c. (18.59 to 29.5 fluidounces), after cocoa from 125 to 372 c. c. (4.22 to 12.57 fluidounces).

W. H. EDDY.

SCHMABERG, J. F., KOLMER, J. A., AND RAIZISS, G. W.: **A Comparative Study of the Trypanocidal Activity of Arsphenamin and Neo-arsphenamin.** *The American Journal of the Medical Sciences*, July, 1920, clx, Part 1, No. 580, p. 25.

Experiments were conducted to ascertain the comparative therapeutic activity of arsphenamin and neo-arsphenamin by infecting rats. The study was also made to see if the toxicity varied. The substances used were prepared by six different laboratories. With the strain of *Trypanosoma*, employed in these experiments, the smallest amounts of arsphenamin sterilizing rats infected twenty-four hours previously varied from 0.010 to 0.030 gram (1-6 to 1-2 grain) per kilo of body weight, the general average for twenty-one com-

pounds prepared by six different laboratories being 0.023 gram (1-3 grain). The smallest sterilizing doses of neo-arsphenamin, under identical conditions, varied from 0.020 gram (1-3 grain) to more than 0.040 gram (3-4 grain). The trypanocidal activity of arsphenamin is 1.74 times greater than that of neo-arsphenamin. According to these results 0.6 gram (9 grains) arsphenamin equals 1.05 grams (16 grains) rather than 0.9 gram (14 grains) neo-arsphenamin in therapeutic activity. These results indicate that neo-arsphenamin is a somewhat safer compound than arsphenamin; even when 1 gram (15.43 grains) of neo-arsphenamin is administered as equivalent in therapeutic activity to 0.6 gram (9 grains) arsphenamin, the margin of safety is greater.

A. T. MAYS.

TOURNADE, A., AND GIRAUD, G.: **Types of Auriculoventricular Dissociation Obtained by Stimulation of the Vagus.** *Societe de Biologie*, Feb. 14, 1920; reported in *La Presse medicale*, 1920 No. 14, p. 139.

It is well known that centrifugal stimulation of the vagus may produce total cessation of the heart beat, or, in exceptional cases, ventricular dissociation. This dissociation may manifest itself in one of two ways: (1) Either the auricle continues to beat while the ventricle is slowed, or even stops; or (2) the reverse may be the case. The first occurs under mild stimulation, just enough to affect the heart. With stronger stimuli, both the auricle and ventricle are influenced. In some instances the ventricle continues to beat while the auricle has stopped, completely inhibited; this is due to the fact that some other stimulus affects the ventricles, (asphyxia, for example). This rhythm can be produced by injecting barium chlorid into the ventricle and stimulating the vagus. The barium chlorid acts as a local irritant and counteracts the inhibitory effects of the vagus. Large enough doses of barium chlorid will alone produce dissociation of the ventricles (the author probably means ectopic beats), and even nodal rhythm.

In a previous report (*Soc. de Biol.*, Feb. 7, 1920; reported in the *La Presse medicale*, 1920, No. 12, p. 120), the authors recorded the effects of barium chlorid upon the fetal dog heart. The vagus

in the canine fetus at full term is incapable of inhibiting the heart. If a Stannius ligature is placed upon the auriculoventricular bundle, the ventricle assumes a rate equal to half that of the auricle, or less. If barium chlorid is now injected into the ventricle or into an isolated part of it, the ventricle suddenly assumes a rate far in excess of the auricle. Its action must therefore be due to irritation of the motor nerve terminations in the heart muscle.

M. H. KAHN.

TATUM, A. L.: **A Study of the Action of Cocain on the Splanchnic and Cervical Sympathetic Neuromuscular Mechanisms.** *Journal of Pharmacology and Experimental Therapy*, 1920, xvi, 109.

A more prolonged and more powerful vasoconstriction produced by epinephrin on intravenous injection occurs after an injection of a very small amount of cocain. The same synergistic action apparently occurs in pupillary reactions to epinephrin following cocain administration.

Kuroda, in making a study of cocain on various tissues innervated by the sympathetic system, blood-vessels, uterus, intestine and urinary bladder, came to the conclusion that cocain had no action on such structures comparable to those provoked by epinephrin, but whatever action did occur was the result of direct action of the drug upon smooth muscle fibers, first weakly stimulating and later, or if in greater concentration, paralyzing them. He failed to find any other feasible explanation of the effects of cocain on the iris than direct muscle action.

Tatum reports experiments done to ascertain, if possible, whether the augmentation of sympathetic activity is a condition of increased neuromuscular irritability responding more powerfully to other types of stimuli, or whether it is limited to epinephrin as an exciting agent. For purposes of constancy of stimulation-energy the induction current was used.

After isolation of one splanchnic nerve in the dog under ether anesthesia, blood-pressure tracings were taken with minimal, effective currents. After cocain injections into the femoral vein, the same stimulus produced a remarkably augmented blood-pressure response. Both height of pressure and duration of response were greatly increased.

It is seen from the tracings that an increased response still occurred in such animals in which had been done decerebration, double vagotomy, transection of the cord and double adrenalectomy.

From such a series of experiments the conclusion seems warranted that on this particular part of the sympathetic nervous system the administration of cocain increases the effects of electrical stimulation of the splanchnic nerve..

In the dog, it was found that cocain actually increases the amount of response of the peripheral vasoconstrictor mechanism in the nasal chambers. It was also found that such small quantities as 0.2 mg. (.00305 grains) cocain in 1 c. c. of salt solution injected into the femoral vein of a dog weighing from 12 to 15 kgs. produced a very marked nasal vasoconstriction which, however, is of short duration and often followed by a dilatation greater than before the drug was given. After a relatively short period the volume returns to normal again.

In two widely separated and unrelated systems of sympathetic nerves evidences are presented that cocain actually renders the peripheral vasoconstrictor mechanism more irritable, as measured in amount of constriction produced by a short period of a near minimal electrical stimulus.

Thus we find that cocain increases the responsibility of the peripheral neuromuscular mechanism to an adequate stimulus and that the so-called synergism between epinephrin and cocain as regards vascular constriction is not one limited to the two drugs, but that cocain so affects the peripheral mechanism that such excitants as epinephrin and electrical stimulations both produce responses in excess of either without cocain.

M. H. KAHN.

MYERS, V. C.: **Chemical Changes in the Blood in Disease. V. Carbon Dioxid Combining Power.** *The Journal of Laboratory and Clinical Medicine*, August, 1920, v, No. 11, p. 700.

Acidosis may result either from an abnormal formation of acid substances, such as is found in diabetes, or from a decreased elimination of normally formed substances, such as is found in nephritis. Under conditions of health the blood is uniformly maintained at a

constant slightly alkaline reaction through the influence of the bicarbonate, phosphate, and proteins of the blood. Increased pulmonary ventilation of the blood, such as occurs with dyspnea or hyperpnea, serves to increase the excretion of carbon dioxid, thus keeping the reaction of the blood within normal limits. In conditions of acidosis, other acids may combine with the bicarbonate, robbing the body of its alkaline reserve. Under normal conditions the kidneys are able to secrete an acid urine from a nearly neutral blood through the medium of acid phosphate. From the investigations of Marriott and Howland it appears that it is just this factor which breaks down in the acidosis of nephritis. Other means of defense are the blood and body proteins, which are able to take up considerable amounts of acid without marked change in reaction, and the ability to form alkali; i. e., ammonia. The latter factor is of considerable importance in the acidosis of such conditions as diabetes and pernicious vomiting, but apparently of little significance in nephritis.

Determination of Degrees of Acidosis.—A number of different criteria have been suggested as a measure of the degree of acidosis: (1) lowered carbon dioxid combining power of the blood; (2) lowered alveolar carbon dioxid tension; (3) decreased hydrogen-ion concentration of the blood; (4) reduced alkalinity of the blood (Sclard's test); (5) increased hydrogen-ion concentration of the blood; (6) increased intensity of urinary acidity (hydrogen-ion concentration); and (7) the retention of alkali by the body in cases in which the kidney is capable of rapidly excreting an excess of alkali. Of these methods the author considers the information as determined by the Van Slyke method of carbon dioxid combining power of the blood, as the best.

Acidosis in Diabetes.—The tests for acetone and diabetic acid in urine in diabetes and other conditions are valuable diagnostically, but they tell little concerning the severity of the acidosis. To secure this information it is necessary to resort to such tests as the carbon dioxid combining power of the blood. In the treatment of diabetes, in particular by the Allen method so commonly employed, acidosis is more to be feared than hyperglycemia, and should be more carefully followed.

Acidosis in Nephritis.—Many cases of renal disease show a more or less pronounced acidosis. In a recent report Chace and Myers have concluded that all fatal cases of chronic nephritis with marked nitro-

gen retention show a severe acidosis, sufficient in most cases to be the actual cause of death. Cases of acute nephritis may occasionally show a severe acidosis.

Acidosis Findings in Children.—Acidosis in the cases of severe diarrhea not of the ileocolitis type is not due to the presence of acetone bodies, but apparently is due to deficient excretion of acid phosphate by the kidneys, as is the case in nephritis. In cases of diarrhea without ileocolitis there is only a moderate increase in acetone bodies, while with ileocolitis the amount of acetone bodies is very large.

Acidosis as the Result of Anesthesia.—Urine voided following anesthesia gives positive tests for acetone bodies. More recently it has been shown that anesthesia results in a lowering of the CO_2 -combining power of the blood. The drop in CO_2 is more pronounced after chloroform than ether, and much less after spinal or gas-oxygen anesthesia.

Estimation of the CO_2 -combining Power of the Blood.—The estimation of the carbon dioxid combining power of the blood is probably the most reliable means of ascertaining the severity of acidosis. In the Van Slyke method the plasma from oxalated blood is shaken in a separatory funnel filled with an air mixture, the CO_2 tension of which approximates that of normal arterial blood. In this way it is combined with as much CO_2 as it is able to hold under normal tension. A known quantity of the saturated plasma is then acidified within the gas pipette, and its CO_2 liberated by the production of a partial vacuum. The liberated CO_2 is then placed under atmospheric pressure, its volume carefully measured and the volume corresponding to 100 c. c. of plasma calculated. The authors give the Van Slyke method in detail, describing the apparatus with drawings.

C. M. ANDERSON.

ACKERT, J. E.: **On the Life-history of *Davainea tetragona*, a Fowl Tapeworm.** *The Journal of Parasitology*, 1919, vi, 28.

Young chicks reared in a screened house were fed with flies, *Musca domestica*, which were trapped in poultry yards where fowls were known to be infected with *Davainea tetragona* and other tapeworms. After two months the chicks were examined and mature tape-

worms as well as embryos were found. Control chicks whose food differed only in the absence of the house flies were free from parasites. Experiments with the flies showed that they eat the egg masses and the onchospheres and either are lost in regurgitation or pass through the digestive tract unaltered and that egg masses are not carried on the feet of the flies. Hence the common house fly is probably the intermediate host in the life-history of *Davainea tetragona* and is the means of transmitting the parasite from one fowl to another.

L. H. GREGORY.

MOTT, F. W.: **Normal and Morbid Conditions of the Testes from Birth to Old Age in One Hundred Asylum and Hospital Cases.** *British Medical Journal*, Nov. 29 1919, No. 3074, p. 698.

Evidence is given to show that the lipoid granules, seen in the interstitial tissues and in the cells lining the basement membrane of the tubules, constitute the raw material from which the nucleic acid, necessary for active nuclear proliferation and spermatogenesis, is formed, and these granules give the oxidase reaction. Reasons are given for supposing that these lipoid granules are derived from the lipoid store in the adrenals.

L. C. JOHNSON.

RAHN, O.: **A Natural Classification of Bacteria** (Versuch einer natürlichen Gruppierung der Bakterien). *Centralblatt für Bakteriologie*, March, 1920, Abt. II, Bd. 50, S. 273.

The author criticises the present classifications of bacteria on the ground that they are not "natural;" relationships of groups are not brought out, and transitional forms, being found embarrassing have been repressed. A classification is presented that is claimed to represent natural relationships.

Bacteria are divided into three great groups: (1) Spore-bearing rods; (2) non-spore-bearing rods; and (3) micrococci.

In subdividing Group 1, Rahn adopts the classifications of Gottheil, Neide, and Bredemann. Four sub-groups are distinguished:

spore-bearing rods that store reserve food as (1) fat, or as (2) glycogen, or as (3) volutin, or as (4) iogen (granulose), with or without glycogen. The fourth sub-group includes the anaërobic spore bearers.

In subdividing Group 2, greater difficulty is encountered. A complex scheme is presented, in which are found six main sub-groups and many transition species connecting them in various ways. Rahn departs widely from the usual classifications in placing the streptococci, gram-negative cocci, and vibrios in the group of the non-spore-bearing rods.

Group 3, containing the gram-positive micrococci, is divided directly into a few species without sub-grouping.

A. H. EGGERTH.

PRÄUSNITZ, C.: The Weil-Felix Reaction and X19 in Immune Serum Agglutination (Weil-Felixsche Reaktion und X19-Immunserum-agglutination). *Centralblatt für Bakteriologie*, Febr., 1920, i, No. 84, p. 103.

The reliability of the Weil-Felix reaction in the serological diagnosis of typhus fever has been called into question by the occasional occurrence of a positive reaction in persons who have never suffered from typhus. The author believes that when a patient's serum agglutinates the bacillus X19, it may indicate either typhus exanthematicus or an infection with *Bacillus proteus*; in the latter case, a false positive Weil-Felix reaction might occur.

Prausnitz immunized himself to the organism X19 by repeated injection of killed cultures. He studied his own serum, and that of a child who had probably suffered from an intestinal proteus infection, but had never had typhus. His own serum, and that of this child, agglutinated X19 in high dilutions. The agglutination titer of both sera was unchanged by heating to 56° C. (132.8° F.) for one hour. The true-positive Well-Felix reaction, on the contrary, is thermolabile; heating the serum to 56° C. for one hour prevents any agglutination. This difference serves to distinguish between the test for typhus (the theory of which is not understood, as it is probably not an immune reaction) and a *Bacillus proteus* infection.

A. H. EGGERTH.

PARDEE, H. E. B.: **The Determination of the Ventricular Predominance from the Electrocardiogram.** *Archives of Internal Medicine*, June, 1920, xxv, No. 6, p. 683.

To the figures of two published series of cases in which both the electrocardiographic records and the weights of the right and left ventricle were given (Lewis's and Cotton's), Pardee has applied four suggested methods of determining ventricular preponderance. The methods of Einthoven, Carter, Lewis, and White were studied. Of these methods, that of Lewis ($R_1 + S_3$) - ($S_1 + R_3$), was found to be the simplest and most reliable. It is suggested that the cause of variations may be that the hearts which varied from their expected position in the scale of predominance were of the markedly transverse or vertical types so that the electrocardiogram is also considered as a possible cause for these variations.

T. HOWARD.

NICOLAYSEN, K.: **Irritation of the Vagus and Hemorrhagic Erosions of the Stomach.** *Archives of Internal Medicine*, March, 1920, xxv, No. 3, p. 295.

Various experimenters have brought forward some evidence to the effect that hemorrhagic erosions of the stomach may be caused by irritation of the vagus nerve. Bearing upon this point the author has analyzed the 10 cases encountered in the Pathologic-Anatomic Institute of the Rikshospital, Christiania, in the last two years, which have shown at autopsy these erosions. In 6 there was evident disease of the brain or its membranes, and vagal involvement seemed highly probable. In 4 there was disease of the chest, in which the vagus nerve might well have been affected. The author then injected rabbits with pilocarpin, which is known to stimulate the vagus. He was able in many cases (9 out of 10 in the first series described) to induce hemorrhagic erosions in the stomachs which already resembled those found in human subjects. A study of the development of these lesions showed that they always began with little hemorrhages into the mucous membrane, this being followed by dissolution (probably digestion) of the damaged tissue, with thrombosis of the adjacent vessels, and some round cell infiltration. Repair very prompt-

ly took place. As the vagus supplies the motor innervation of the stomach and has nothing to do with the vasomotor mechanism, Nicolaysen suggests that the minute hemorrhages may be produced by contraction of the musculature of the stomach, especially the muscularis mucosae, through which the small vessels pass to the mucous membrane.

T. HOWARD.

ČSONKA, F. A.: **A Study of the Nephelometric Values of Cholesterol and the Higher Fatty Acids.** *Journal Biological Chemistry*, 1920, xli, 243.

Nephelometric values of oleic acid and cholesterol were influenced by the saponification procedure as well as by the addition of certain substances, which alone, under similar circumstances, do not produce turbidity. These influencing agents are exemplified by the use of gelatine as a protective colloid.

W. H. EDDY.

VAN SLYKE, L. L., AND KEELER, R. F.: **The CO₂ Content as a Basis for Distinguishing Heated from Unheated Milk.** *Journal Biological Chemistry*, 1920, xlii, 41.

In a previous article (*Journ. Biol. Chem.*, 1919, xl, 335) the authors had shown that the pasteurizing of milk reduces the CO₂ content to such an extent that this change could be used to distinguish pasteurized milk from unheated milk.

The present paper investigates the effect of standing, method of milking, etc., on the CO₂ content and they find that under the conditions to which normal unheated milk is subjected from time of milking to delivery to the consumer, the volume percentage of CO₂ rarely drops below 3 and seldom below 3.5, while pasteurization reduces the volume percentage of CO₂ to 2.5 or less. It is therefore safe to assume that milk containing less than 2.5 to 3 per cent of CO₂ has been heated to the temperature of pasteurization.

W. H. EDDY.

MUSSER, J. A.: **Notes on Gastric Secretions in Neurocirculatory Asthenia.** *The American Journal of the Medical Sciences*, May, 1920, clix, Part 5, No. 578, p. 664.

Eleven cases of neurocirculatory asthenia were compared with controls while in the Army under identical routine of living and eating. Fifteen minute fractional test-meal determinations showed a difference of from ten to twenty higher total and free acidity in the effort syndrome subjects. The curves tended to remain or to elevate after the maximum level was reached at seventy-five minutes extraction. This study adds more evidence that this condition is a form of a neurosis with which is probably associated a hyperirritable vagus.

A. T. MAYS.

Fox, H.: **Arteriosclerosis in Wild Animals.** *The American Journal of the Medical Sciences*, June, 1920, clix, Part 6, No. 579, p. 821.

This is a report from the Laboratory of Comparative Pathology at the Philadelphia Zoölogical Garden. The number of mammals autopsied is 1806. In these angeitis occurred in 33 or 1.8 per cent. Birds autopsied numbered 3571. Angeitis was present in 53 or 1.4 per cent. All other animals autopsied numbered 87, with no angeitis present. The animals most affected are those naturally equipped for severe effort such as fighting and flying. The aorta is more affected in mammals; the disease is more distributed in birds. Arteriosclerosis is most common in cats and dogs, bovines, predatory birds, parrots, gallinaceous birds, and aquatic birds; and in these groups it is most definitely developed in those living on a protein diet. In parrots the lesions are more common in the smaller vessels and strongly resemble senile arteriosclerosis as seen in man, probably because these birds are long-lived. Of 86 birds, only 2 showed chronic valvulitis, the aortic and mitral being involved. The arteriosclerotic lesions take the form of roughened, rather opaque internal changes with degenerations of the media, but there is usually missing the well-outlined, heaped up, ulcerating, roughened intima so characteristic of late human atheroma. Fatty yellow streaks are only occasionally seen, but do not go on to calcification. The aorta is the most affected vessel and the lesions are usually pres-

ent at the top of the arch and in the thoracic portion. The scarring of syphilitic aortitis is never seen. Deformity is rare and only four aneurysms were seen. Thirty-one cases showed frank chronic renal disease, about equally divided between degenerative and glomerular types. A monkey showed distinct coronary sclerosis and concentric hypertrophy.

A. T. MAYS.

JONES, L. R.: **A Comparison of the Three Methods of Examining Sputa for Bacillus Tuberculosis.** *The Journal of Laboratory and Clinical Medicine*, Oct., 1920, vi, No. 1, p. 41.

The three methods used were the direct, the antiformin, and the autoclaved. With the antiformin method the reagent (sodium hydroxid and sodium hypochlorite) of 30 per cent strength was added to the sputum in centrifuge tubes (the volume of each being equal) and allowed to stand from 10 to 12 hours, in which time digestion of the tenacious mass was completed. The tubes were then centrifuged at a high rate of speed for fifteen minutes and smears made from the sediment. With the autoclave method, the sputum was subjected to fifteen pounds of steam pressure for fifteen minutes in an autoclave. This process, of course, coagulated all mucous and serous material and rendered innocuous tubercle bacilli, if present, as well as other microorganisms. The coagulum with its entangled bacteria was of suitable consistency for preparing the smear.

All prepared smears were fixed to the slide by heat, stained with steaming carbo-fuchsin, and counterstained with saturated alcoholic solution of picric acid.

Results showed that the concentration of bacilli in tuberculous sputum is slightly more after treatment with the antiformin than with the autoclave method. Neither to any extent surpasses direct smear examination.

Of a total of 153 examinations by the direct method, 3 were negative; of a total of 170 by the antiformin method, 8 were negative and of 170 examinations by the autoclave method, only 2 were negative. The autoclave method kills all the tubercle bacilli and renders the sputum easy and safe to handle.

C. M. ANDERSON.

OSBORNE, T. B., AND MENDEL, L. B.: **Nutritive Value of the Proteins of the Barley, Oat, Rye and Wheat Kernels.** *Journal of Biological Chemistry*, Feb., 1920, xli, 275.

Cereal grains alone, or mixtures of them, are unsatisfactory for nutrition because of deficiency in certain dietary essentials, notably specific inorganic elements and fat-soluble vitamin. These can easily be supplemented in feeding. The foremost remaining dietary factor in these seeds is protein. In some the proportion of protein calories is low. It has also been demonstrated that certain of the proteins present, such as zein in maize, gliadin in wheat, and hordein in barley, are chemically deficient, i. e., physiologically inadequate proteins. The article is a study of the relative nutritive value of the combined proteins of the different cereal grains.

The method employed in these particular studies follows: the finely ground seed mixed with 3 per cent of a suitable salt mixture, 5 per cent butter fat and, where necessary enough cornstarch to make the total protein of the mixture approximately 5.8 or 10 per cent, was fed to rats. In this way the proteins of barley, oats, rye and wheat were compared. Each day a little more than enough of the finely ground food for one day's feeding was mixed with a quantity of water sufficient to make a soft dough and this mixture was packed into food cups. The next morning the food remaining was dried in an oven. At the end of a week the residues were collected and weighed, and their weight was deducted from that of the dry ingredients fed.

Detailed results are given with each cereal. In general they find that the growth of their rats on diets are essentially comparable, except in respect to content and source of the cereal proteins contained therein. The experiments to date indicate that the proteins of the four series studied are not widely different in their efficiency in promoting growth. Barley-fed animals have, however, if anything, grown best. The utilization data testify to the unexpected availability for growth of the proteins of the whole cereals and is in harmony with the findings of Sherman and collaborators. They conclude that they have observed sufficient, successful prolonged growth in the case of all the cereal studies to make it unlikely that the protein factor is responsible for the untoward outcome of many cereal experiments.

W. H. EDDY.

MASON, E. H., AND EMMONS, R. V. B.: **The Value of the Intrapalpebral Mallein Test in the Diagnosis of Glanders.** *The Journal of Immunology*, Sept., 1920, v, No. 5, p. 489.

In consideration of the problem in view, that is, whether doubtful or conspicuous intrapalpebral mallein reactions in horses are confirmed by the serological findings, our facts would indicate that the complement-fixation reaction is of greatest value, it being positive in 75 per cent of the 94 horses examined. The agglutinin reaction ranks second, confirming a suspicious mallein test with a definitely positive reaction in 44 per cent of the cases of the same series. Therefore we would conclude that the complement-fixation reaction is of the greatest benefit in confirming a doubtful intrapalpebral mallein test, but that this reaction should be considered in conjunction with an agglutination test, one to act as a check upon the other.

W. LINTZ.

FLEISHER, M. S., HALL, T. G., AND ARNSTEIN, N.: **Serological Relationships of Liver and Kidney.** *The Journal of Immunology*, Sept., 1920, v, No. 5, p. 437.

By means of complement-fixation reaction and absorption of sera prepared against guinea pig liver and kidney we have been able to show that there exists a definite relationship between the antiorgan sera and the homologous antigens. The antigens and antisera are not simple but are complex in nature and probably are composed of several different partial antigens and immune bodies. Possibly these partial antigens and antibodies can be arranged in three groups: The first having a very wide range of activity and having a relationship to all or practically all tissues of the species; the second having a limited range of activity and having relationship only with the tissue used in the preparation of the antiserum; and the third being possibly a group of antibodies, also rather limited in their range of activity but reacting only or more strongly with individual tissues other than the one used as the immunizing substance.

W. LINTZ.

SECTION ON PEDIATRICS

WILCOX, H. B.: **Some Peculiarities in the Symptomatology of Childhood.** *Archives of Pediatrics*, Oct., 1920, p. 577.

Explanations for some of the peculiarities of certain symptoms occurring in disease in childhood are offered in this article. The greatest contrast in symptoms occurs in infancy and early childhood. The infant is peculiarly immune to certain types of affections, is susceptible to others and has not the power of adaptability that older children or adults have. It is, then, while the child is establishing his defensive armamentarium that the widest variations of symptoms are manifest.

For instance, a marked elevation of temperature in an adult during illness is usually more or less grave, or, at least of considerable importance, while a temperature of 104° F. (40° C.) in an infant a few days old often simply means lack of fluids or food. While dehydration may be a cause of pyrexia in adults as well as in children, it occurs more promptly and to a greater degree in the latter. Again a temperature that will cause marked discomfort in the adult may disturb the child very little.

A fasting adult may show no fever during the fasting period; in fact, it is usually subnormal during the latter days; but in the child the temperature is elevated throughout the fast. The author explains this difference on the ground that the capacity for heat production in the infant is greater than in the adult, both actually and relatively; actually, because infant metabolism is three times greater than in the adult; relatively, because heat production varies directly with surface area, the smaller the body, the relatively greater the amount of heat produced. Diminished heat loss, due to a disturbance of one

or more of the methods of heat elimination, conduction, radiation and evaporation, accounts for pyrexia. In most instances in the baby, conduction and radiation are greatly interfered with by tight bandages and excessive clothing so commonly used.

The third factor, the most important one, evaporation, is a poorly developed one in infants. Extrinsic causes, such as clothing, artificial heat, humidity, etc., affect the temperature of the baby, sometimes alarmingly, whereas it rarely affects the adult. Balar, San-sum, and Woodyatt, in experiments on dogs which were given sugar solutions intravenously to greatly increase the urinary output, showed that the degree of temperature produced varies inversely with the body weight. An infant's reserve body fluids are low and easily depleted, which, with the late development of the temperature control mechanism, puts him at the mercy of prompt administration of proper fluids.

The Heart and Circulation.—The size of the heart in relation to the size of the body reduces from birth to maturity. There is a corresponding reduction in the heart's rate and the time of the circulatory cycle. Systolic blood-pressure corresponds, relatively, to that of the adult; diastolic is lower in the child. The apex of the heart during the first four years is in the fourth space outside the nipple line; from this time on it gradually assumes its adult location. The heart of the child shows great recuperative powers, as illustrated in a group of 77 severe cardiacs under observation for four years at the Bellevue Children's Service, where they were provided with the proper environment and treatment alongside 114 cases suffering from other serious conditions. Cardiac and vasomotor centers in childhood are very unstable; irregularities of action may occur from wandering impulses from esophageal, gastric and intestinal branches of the vagus to the cardiac branches, as well as from direct pressure on the heart by a distended stomach or intestine. Murmurs simulating in every way endocardial disease may accompany slight bodily disturbances, as a congested throat with high fever. Enlargement of the heart or pericardial effusion may simulate lung consolidation by producing dullness and bronchial breathing over the encroached-upon lung. These peculiarities are especially prominent in children.

The Blood.—The total leukocyte count is slightly higher in the infant than in the adult. The normal adult ratio of 70 per cent

polynuclears and 30 per cent lymphocytes is reversed in the infant. The hemoglobin is highest at birth, lowest at five months, gradually reaching adult normal at sixteen years.

The Lungs.—Differences in physical signs peculiar to certain areas of the chest due to physiological causes are exaggerated all the more in children. The author recalls the intensified breath sounds, "puerile breathing", the importance of comparison of signs at the right apex anteriorly, where loud breath sounds often mark certain pathology, and signs in the axilla to which the phenomena are often transmitted, etc.

Involvement of the middle ear in children is demonstrated by inspection of the drum, which should be a part of all routine examinations. The latter is necessary in order to familiarize one's self with the position and characteristics of the child's drum. In mastoid involvement, an early sign is the drooping of the posterior and superior wall of the auditory canal due to the thinness of the bony plate separating the antrum from the external auditory canal. This is of more importance than tenderness, edema and pain over the tip of the mastoid. Attention is called to the lymphoid tissue at the base of the tongue as a frequent source of infection in the upper respiratory tract, producing embarrassed breathing or persistent cough. Acidosis, diagnosed from the mere presence of varying amounts of acetone bodies in the urine, may be of no clinical significance. Infants normally excrete in the urine from 1 to 2 mgs. per kilo of body weight. Children begin oxidation of stored fats from a slight disturbance; acetone bodies result if this metabolism is faulty, which may be due to a lack of sufficient carbohydrates to provide for complete oxidation of the fats. This lowered oxidation is further aided by capillary dilatation which often occurs in the toxemias and intoxications, as a result of which the circulating blood volume is reduced, with a resulting suboxidation of all the tissues. Hence in respiratory infections, acetone is usually abundant.

Reflexes.—These are of less significance in children than in adults, owing to the imperfect development, incomplete myelinization, and low cortical control of the pyramidal tracts with resultant functional affections.

Convulsions.—Since the central nervous system is imperfectly developed early in life, convulsions are not so common during the first four months of life as during the remainder of the first two

years. They become more common when the motor neurons with their efferent tracts, and the lower centers are further matured, but are as yet ungoverned by the still later developing nervous mechanism of coördination and control. Cerebral hemorrhage at birth may cause no brain symptoms at that time, and later may produce symptoms referable to toxic intestinal absorption. Cerebral hemorrhage and intestinal toxemia are often confused, as illustrated by the report of a case which had been a feeding problem for the seven months of its life, weighing only eight pounds shortly before death, and which had had recurring attacks of twitchings. In spite of the fact the labor had been normal and easy, the anatomical diagnosis was given as "old organized bi-lateral cerebral hemorrhage of the corpora striata, etc".

T. B. GIVAN.

WEBER, F. P.: Unilateral Dwarfism of Limbs Connected with Congenital Multiple Chondromata. *British Journal of Children's Diseases*, London, 1920, xvii, 85.

Weber reports a case of shortening of the right limbs in a boy of 13 years of age. The measurements of the limbs were: Arms, from the acromion to the tip of styloid process of radius, right, 35 cms. (13.78 ins.); left, 45 cms. (17.72 ins.). Legs, from the great trochanter to the tip of external malleolus, right, 50 cms. (19.69 ins.); left, 67 cms. (26.38 ins.).

Röntgenograms showed the presence of large chondroma at the lower end of right tibia and of chondromata in right ulna and right radius. These findings cause him to feel that the presence of congenital chondromata may in some way be causally connected with dwarfism of the affected limbs.

M. B. GORDON.

CALDERIN, A. M.: Pathogenesis of Laryngeal Spasm in the Breast-fed Infant. *Archivos Espanoles de Pediatria*, Sept., 1920.

The author's deductions follow:

(1) Laryngospasm in the breast-fed infant is not the result of

functional or organic change in the larynx, but the result of an organic and general disturbance of nutrition.

(2) This organic disturbance is in the normal calcium balance.

(3) The alteration in the metabolism of the calcium ion is primarily caused by parathyroid disfunction.

(4) The thymus has an influence on this metabolic regulation, being the precursor in age of the other endocrine glands.

(5) Intestinal fermentation causes calcium disturbance, with the establishment of a "diathesis". This diathesis is known as spasmodophilia and is solely responsible for laryngeal spasm.

(6) The best results of treatment have been obtained by a combination of calcium salts and parathyroid extract. Of the calcium salts the lactate and bromid are most potent, the chlorid is next in order, while the sulphate is the weakest.

(7) These children should be protected from all emotional disturbances, from debilitating influences, and from irritation of the nervous system. Special attention should be directed to the diet.

W. H. DONNELLY.

VARIOT, G. AND LANTUEJOUL, P.: **A Case of Congenital Paroxysmal Cyanosis with an X-ray Examination of the Heart.** *Archives de médecine des enfants*, Paris, Oct. 1920, xxiii, 599.

The authors quote the case of a girl of two and one-half months who developed cyanosis of the face and extremities only when crying or being picked up. She had a loud systolic murmur (heard over the precordium) and polycythemia. The x-ray showed an hypertrophied heart.

W. C. DAVISON.

CUADRA, A.: **A Case of Congenital Malaria.** *Archives de médecine des enfants*, Paris, Oct., 1920, xxiii, 606.

The infant whose mother had typical malaria, developed fever two days after birth. Plasmodium vivax was found in the blood of the child and the mother. Both were cured by quinin. Several analogous cases are quoted from the literature.

W. C. DAVISON.

BAMBERGER, A.: **Blood Transfusion in the New Born.** *Illinois Medical Journal*, 1921, xxxix, No. 1, p. 27.

If hemophilia, internal hemorrhage or severe anemia from unknown causes appear in the new born, blood transfusion should be resorted to. It is often not done on account of fear of insufficient manual skill or on account of unwillingness to make expenditure for facilities. The author describes the technic to be used in the house of the patient, if necessary. It is the indirect method of blood transfusion.

The instruments are: two aspirating needles of about 18 gauge for the donor; two of about 20 or 21 gauge for the recipient (one of these is an extra one to be used in case the first should become plugged); one graduate, one glass rod, one graduated glass cylinder, one small scalpel, one pair of fine tissue forceps, several small artery forceps, one pair of scissors, several cutting needles, ligature carrier, catgut No. 00, silkworm gut, and a rubber tubing tourniquet. A normal saline solution and a 2.5 per cent sodium citrate solution are used.

The author deems a blood test unnecessary, inasmuch as the donor is generally the child's father or mother.

With an aspirating needle, about 100 c.c. of blood are drawn from the median basilic vein of the donor and collected in the graduate into which 5 c.c. of the citrate solution are placed, and when 50 c.c. of blood have collected, another 5 c.c. of the citrate solution are added. An assistant must constantly stir the mixture with a glass rod.

A tourniquet is applied to the upper part of the child's arm, and an incision at least one-half inch long and extending about 1 cm. above the bend of the elbow is made, and the vein is isolated by dissections. The needle should be inserted into the upper part of the wound, as the vein is largest in diameter there. The needle should be large enough to distend the vessel. Then the tourniquet is removed. The air having been well expelled from the graduate cylinder, normal saline is first sent into the vein. After transfusion the vein is ligated and the wound is sewed with silkgut.

During transfusion the heart of the infant must be watched for sudden dilatation.

LOVE, J. D.: **Overmedication in Infancy and Childhood.** *Southern Medical Journal*, 1921, xiv, No. 1, p. 21.

The author assigns the therapeutic nihilist to the ranks of those of the drugless cult, and says that such a man is, in his loss of confidence, and in his probable lack of knowledge of the properties of his tools, no longer useful as a member of the medical profession. However, children are overmedicated, even more than adults, by parents as well as by the profession. The author wishes to find the rational way of putting materia medica to good effect, avoiding the establishing of drug habits, and the consequent ineffectiveness of therapy.

"In cases of illness", he says, "where a known specific exists, we should treat the disease. Where a specific is not known, treat the patient; and give drugs only when a positive indication therefore exists."

A single drug should be given and abided by, rather than giving compounds, especially patent preparations. A quiet word and cheerful perseverance will convince the parents. Quinin, in the South, is administered almost invariably in all febrile conditions, and calomel is given in the bargain. The children's stomachs have become intolerant to food and to needed medication. The nervous equilibrium is upset. Not every case of fever calls for these drugs.

Children with infectious diarrhea are robbed of their last chance to survive by previous overmedication with opium, the blandest food not being retained. Where diarrhea may be the child's salvation, it is necessary to put it forth to the parents in this sense, and in constipation overmedication should be substituted by dietary instruction and enforcement.

Iodin in gland-treatment, digitalis, caffeine in edema of nephritis, do more harm than good. Expectorants and sedatives in the routine treatment of pneumonia may aggravate the case by destroying appetite and impairing digestion. Every physician knows it is safest to get along with a minimum of medicine in treating pneumonia in an infant.

The author abhors the indiscriminate use of vaccine for almost every ill of childhood, while agreeing to the efficacy of vaccines in a few conditions.

Employed with drug therapy, one is incapable of deciding which of the agencies is responsible for any result secured.

ROHMER, P.: **The Role of the Physician in Child Hygiene.** *Archives de médecine des enfants*, Paris, Oct., 1920, xxiii, .593

Rohmer attributes the high death rate among infants one year of age in France, to the infrequency of maternal nursing, to poverty and unhygienic surroundings. The mortality among illegitimate children, which is usually nearly twice as high as that of legitimate infants, was reduced to par in Strasbourg by a law forcing the fathers to contribute to the support of their offspring. The author investigated the feeding and care of 218 poor babies and found that 83 per cent of those who were breast-fed were in good health during the first six months of life and that 80 per cent were healthy from the seventh and twelfth month, while only 35 per cent of artificially fed babies were in good health during the first six months and but 18 per cent from the seventh to the twelfth month. The mortality among artificially fed infants was from six to seven times as high as that among breast-fed children. The former are also weaker and more subject to disease during the second and third years. He makes a plea for the encouragement of maternal nursing and advocates a fund to enable mothers to cease employment so that they may care for their infants.

W. C. DAVISON.

ABT, I. A., AND TUMPEER, I. H.: **The Significance of Xanthochromia of the Cerebrospinal Fluid.** *American Journal of Diseases of Children*, xx, No. 3, p. 153.

In the literature anthochromia of the cerebrospinal fluid has included all fluids with a yellow color and increased globulins, with or without red blood-cells. Erythochromia is suggested as a better term for those containing red blood-cells.

The most frequent syndrome is that of Froin's which includes yellow color, massive coagulation and increased globulins. The French stress the coagulation feature, while the Germans emphasize the increased globulins, whereas both are a matter of degree. The cause of the yellow color is of hematogenous origin: some ascribe it to a hemolytic biliary pigment, others to the pigment from multiple small hemorrhages. Gordon says that the pigments accumulate

in greater concentration where there is a limited area for absorption and produce a compression syndrome; thus they contain no erythrocytes. The formation of a meningeal pouch is necessary; this pouch may be produced by tumor, meningeal adhesions and trauma. If due to a tumor it may be of the ball-valve type, thus accounting for the various findings in some cases at different times. The contents of the closed pouch accumulate from the blood by transudation or hemorrhage, in the presence of an alteration of the vessel-walls of the pouch. That it is usually a transudation is explained by the fact that the pressure in the culdesac is diminished because the spinal fluid above the compression is shut off, and the veins at the compression are dilated. The fluid is high in albumin and contains thrombin and fibrinogen. Coagulation may occur in the needle or be delayed for a few hours. Mix finds that the fibrin content is about the same as that in the blood. In case of tumor, the cell count is usually low, but increased if due to inflammatory or traumatic processes. The formation of a pellicle occurs when there is a meningitis with insufficient compression to cause massive coagulation. To an incompleteness of obstruction may be attributed the total absence of coagulation in some cases of xanthochromia. This would give Nonne's incomplete syndrome, which Hanes claims is an early process of Froin's. From 5,801 spinal punctures, Nammock reports 1.6 per cent yellow fluids, with the complete syndrome in only 6 cases. He found yellow fluids in two-thirds of the cases of tubercular meningitis, and suggests that tuberculosis or polyomyelitis should be suspected in case of xanthochromia. Neoplasms, inflammatory processes and trauma may produce multiple capillary hemorrhages without compression, and thus effect a yellow color by the freeing of the hemoglobin. The authors report a case in detail of a premature infant which has xanthochromic fluid without coagulation and with red blood-cells. This condition was the result of a meningo-encephalitis with subpial hemorrhages.

T. B. GIVAN.

BOROBIO, P.: Poliomyelitis. *Archivos Espanoles de Pediatria*, Oct., 1920.

This is a very comprehensive article which almost completely takes up the text of the October number of the above magazine. Sta-

tistics are quoted from all the important epidemics of the disease throughout the world, and the classification of Wickman is accepted, which gives eight forms of the disease. This classification is as follows:

- (1) Poliomyelitic form.
- (2) Landry's paralysis form.
- (3) Bulbar form.
- (4) Encephalitic form.
- (5) Ataxic form.
- (6) Polyneuritic form.
- (7) Meningeal form.
- (8) Abortive form.

Borobio accepts the organism of Flexner and Noguchi as the specific pathogenic bacterium, and human contract as the sole proven mode of transmission of the disease.

The prognosis is variable in different epidemics, apparently the more cases of the meningeal type occurring in a given series, the fewer deaths resulting. In general, it may be said to be favorable as regards life, and unfavorable as regards function of the paralyzed limbs. There is very little of the benign in the disease, the highest mortality being encountered on the fourth day, which may be truly looked upon as the critical day; if the patient survives the first week, it may be said that he will not die.

Treatment in the acute stage is symptomatic; in the stage of establishment, treatment consists of serumtherapy; while the logical measure has not by any means reached a dependable basis. Later, massage, electrical treatment, and orthopedic measures, including muscle transplanting, are indicated.

W. H. DONNELLY.

SECTION ON
ROENTGENOLOGY AND ELECTRO-
THERAPEUTICS

COLLECTED ABSTRACT OF THE LITERATURE ON
ROENTGENOLOGY FOR THE YEAR 1919

By I. SETH HIRSCH

ORGANS OF DIGESTION (THE URINARY TRACT)

(Continued from page 181)

Pfahler has previously called attention to the method of the injection of air for the roentgen diagnosis of tumors of the bladder (*American Journal of Roentgenology*, August, 1919).

The examination of the bladder for tumors by the expert cystoscopist has been so successful that this modified roentgen method has probably not been developed to the fullest advantage; but the reasons why the examination by the cystoscopist is not practical follow:

(1) Because of the severe pain which generally accompanies these examinations.

(2) Because of the inability to pass the cystoscope.

(3) Because of severe hemorrhage.

(4) Because of decided objection on the part of the patient.

(5) Because an expert cystoscopist is not always at hand.

Therefore, when one can obtain definite information with regard to tumors of the bladder, especially as to size, position and conformation, such evidence should not be neglected.

The author's technic is to make an anterior plate and a posterior one before attempting an injection of air. In this way one is able to localize the air or gases which may be retained in the rectum or pelvic colon. One may also recognize the presence of a stone in the bladder. The urethral orifice is then cleansed in the usual manner necessary for catheterization. The catheter is chosen according to conditions present, the largest size that will pass without pain or inconvenience being utilized. An atomizer bulb is then attached to

a piece of glass tubing which is so adjusted that it can easily be attached to the catheter. This glass tubing and the catheter should be sterilized. An extra precaution against the injection of germs from the air into the bladder consists in utilizing a glass tubing which is wide at one end, into which can be inserted a plug of sterile cotton; this will filter the air to a certain extent during the injection, though the danger of injecting germs from the air is not serious.

The catheter is passed into the bladder and the residual urine is removed, the bladder is compressed until so far as possible all of the fluid in the bladder has been eliminated. Air is then injected or compressed into the bladder by means of the atomizer bulb until the patient complains of distress, distention or desire to urinate, at which time one can generally outline the bladder by percussion. If the injection is made slowly and due attention is paid to the complaints of the patient, the author believes that no harm can be done. It is possible, of course, to overdistend the bladder or even to rupture a diseased bladder by this process.

A pair of hemostatic forceps are clamped over the catheter, the atomizer bulb is removed and one or more plates are made posteriorly; the patient is turned on the abdomen and one or more plates are made anteriorly, the rays being directed through the bladder obliquely from below upward so as to avoid the pubic arch as much as possible. Generally the anterior view will give most information, but it is decidedly advantageous to utilize both positions.

New growths as small as a thimble, may be demonstrated in the bladder; in other cases half of the bladder area may be involved. At times the tumor has been located directly over the prostatic area, in others on the lateral wall of the bladder, and in others apparently above the prostate, on the posterior wall. To decide positively whether these new growths are malignant or benign is not always possible, neither can they be decided positively by the cystoscope; one judges by size, position and general outline. If the tumor is large, occurs in an older patient, and is irregular in outline, especially if it presents a broad base, one would think first of malignancy. If it is small, smooth and pedunculated, one would think first of a benign growth.

Diverticuli of the bladder can also be demonstrated in this manner, especially if the diverticulum occurs on the lateral wall. If it occurs posteriorly or anteriorly, it is less definitely demonstrated;

generally the injection of an opaque solution into the bladder will give a better outline of a diverticulum, but there is nothing to prevent the use of both of these methods when necessary. The injection of an opaque solution is of very much less advantage for demonstrating the outline of a tumor of the bladder, because the opaque solution will cover up the outline, except when it is located on the lateral wall.

W. F. Braasch, and F. A. Olson (Roentgenographic Diagnosis in Renal Tuberculosis, *Surg., Gynec. & Obst.*, xxviii, No. 6) insist that the *x*-ray examination should be utilized in urinary work more than it is. A complete *x*-ray examination is made in every case of suspected renal tuberculosis. One hundred and thirty-one patients were operated on for renal tuberculosis. Positive shadows suggestive of renal tuberculosis were found in 30 patients, a percentage of twenty-two. It may be stated, therefore, that approximately 1 out of 5 patients with renal tuberculosis will have positive roentgenographic data of definite diagnostic value. Such data are of particular value in conditions such as follows:

(1) When, because of the contracted condition of the bladder or impassable stricture of the ureter, the cystoscopic findings are inadequate.

(2) When the cystoscopic findings are not typical of renal tuberculosis.

(3) When the clinical findings are not suggestive of renal tuberculosis or of any involvement of the urinary tract, as may occur with a closed tuberculous pyonephrosis.

(4) In the presence of bilateral renal tuberculosis, when the typical shadows frequently render cystoscopy or further clinical examination unnecessary.

The shadows are due to deposits of calcium in tuberculous areas and assume a variety of forms. They may be differentiated from a stone shadow as follows: (1) By the variability in its density, as the shadow is irregularly concentrated in different portions; (2) by a shadow of lesser density throughout than that usually observed with stone; and (3) by its irregular and indefinite outline. The calcareous area may, however, simulate the shadow of a renal stone in every particular, and it may be quite impossible to differentiate it without further clinical data. The same is true of renal stones that are occasionally of such consistency that the shadow will be fully as ir-

regular and hazy in outline as a typical tuberculous shadow. It may be said, however, that approximately 75 per cent of tuberculous renal shadows may be recognized as such in the roentgenogram.

The shadows are due to deposits of lime encrusting the ends of the calices and to cascated areas containing sufficient deposits of calcium to cast a shadow. These shadows are classified in groups as follows: (1) Multiple scattered small areas; (2) single or a few localized areas of 1 cm. or more in diameter; and (3) large, irregular, diffuse areas involving the kidney either in large portions or in entirety.

In the *first group* the small scattered areas are generally caused by lime deposits. They are occasionally seen singly, and appear as elongated, irregular faint streaks, or as multiple punctuate areas, scattered over a large portion of the kidney, usually in one of the poles.

The *second group* representing single or several isolated areas of concentrated calcareous deposit is the type most easily confused with stone. The shadows are usually of several varieties: (1) a shadow of irregular outline with a consistency dimmer than that seen with renal stone and varying in size from 1 to 3 or 4 cm.; (2) a shadow characterized by great irregularity in its consistency and outline, somewhat resembling filigree work; and (3) definite shadows with a density and contour suggestive of stone. The size of the shadow in no way indicates the extent of the tuberculous lesion. A shadow may be only a centimeter or two in diameter, yet the tuberculous lesion may involve the entire pole or even the complete kidney.

The *third group* is characterized by large, regular rounded shadows of variable density in their various portions. This is due to a softened condition of the area which causes the shadow. It is, however, impossible to say from the appearance of such cascated areas whether or not a shadow will be present in the roentgenogram. Of two cascated areas of similar appearance, one area may cast a shadow and the other none at all. Occasionally the calcium deposit is so light that a soft diffuse shadow will be seen only on careful plate reading, and it may be easily confused with similar shadows cast by the bowel.

Shadows caused by complete caseation of the kidney are most striking. They may assume the outline of a complete cast of the kidney and are usually irregularly lobulated. The shadow may vary in density in different portions of the kidney, some of which

may be so dim as to be scarcely discernible, while others may be definitely and strikingly outlined. Occasionally, with complete or extensive calcification, the calcium deposit may be so slight that the *x*-ray simulates that of accentuated normal renal outline, and it may be difficult to determine whether or not it is an actual pathologic shadow.

True renal stone formation is rare in tuberculous kidney. When it does occur it is generally a phosphatic stone, formed in a localized abscess with necrosis and secondary infection. Stone formation in the opposite kidney in cases in which a tuberculous kidney had been removed occurred in but two instances that came under our observation. One patient passed a small renal calculus from his remaining kidney two years after the other kidney had been removed for tuberculosis. It may be inferred that primary stone formation is unusual in patients with renal tuberculosis.

These shadows must be differentiated from renal calculi, intestine contents, gall-stones, calcareous deposits, in glands in perirenal tissue in the pleura.

Ureteral Shadow.—Calcareous deposit may occur with tuberculosis of the ureter less frequently than in the kidney, the process involving usually the lower portion. The shadow may be several centimeters or more in length and outline the dilated ureter to a greater or less extent, and is due to calcareous deposits in the thickened wall of the ureter or by intraureteral calcareous deposits. Such deposits are generally accompanied by similar caseation in the kidney. Considerable periureteritis may accompany this calcification of the ureteral wall. The periureteral infiltration together with the thickened ureter will often produce a tumor mass which can easily be palpated on rectal or vaginal examination. Calcified glands in the bony pelvis which cast shadows suggestive of either stone or tuberculous deposits in the lower ureter can be differentiated by the absence of clinical evidence of tuberculosis in the urinary tract of other portions of the body.

The *x*-ray examination is especially valuable in bilateral involvements. This may be important if a tuberculous shadow is found on one side only. This is especially true if one side is chronic and the other acute. If the bladder is in such a state that it is impossible to make a satisfactory cystoscopic examination, a shadow of calcification in one kidney area might be of considerable diagnostic value.

This is illustrated in conditions such as follow: (1) When the healthy kidney has been catheterized and it is impossible to find or catheterize the other side; (2) when neither meatus is found, but when the patient's general condition and the renal functional tests indicate the existence of one healthy kidney; and (3) when evidence of disease is found in the kidney that is catheterized, and there is a shadow of calcification in the kidney which cannot be catheterized. The changes in the pelvic outline as shown by the pyelogram which are regarded as characterized by tuberculosis are: (1) Irregular inflammatory dilatation of the pelvis, (2) areas of cortical necrosis, and (3) stricture in the ureter.

Inflammatory dilatation of the pelvis as the result of tuberculosis in its early stages is largely confined to the calices. The dilatation is differentiated from ordinary inflammatory dilatation by the greater irregularity in outline of the calices and by the variability of degree of dilatation among the different calices. A peculiarity often noticed is marked dilatation at the ureteropelvic juncture.

When there is necrosis of the renal parenchyma adjacent to the calices, the pelvic outline becomes irregular and indistinct. When the necrotic areas are confined to one or two calices, the outline has a moth-eaten appearance at the apices, and the pyelographic medium is visible as a hazy shadow extending into the parenchyma. When the necrotic process is advanced, it may either assume irregular forms scattered through the parenchyma or it may coalesce to form a large irregular sac.

Occasionally the outline of the necrotic area is apparently detached from the pelvis or connected with it by a narrow isthmus. When the area of necrosis is confined largely to the cortex and is not directly communicating with the pelvis, the pelvic outline may occasionally become contracted in a manner resembling certain forms of pyelonephritis.

As a result of the infective process in the kidney, inflammatory dilatation of the ureter will follow and may be demonstrated in the ureterogram. Ulceration of the mucosa with stricture and mechanical dilatation may also be present. Ureteral dilatation resulting from tuberculous stricture in the ureter resembles the dilatation resulting from a benign stricture, or from obscure lithiasis in the clinical and cystoscopic findings, but pyelography will usually demonstrate in the pelvic outline abnormality that is suggestive of tuberculosis.

The cystogram may also occasionally be of diagnostic value, particularly when it is impossible to find either one meatus or both. The bladder outline will be variably contracted and usually more in one half of the bladder. The demonstration of a dilated ureter by making a cystogram with the patient in the Trendelenburg position is suggestive of renal involvement on that side. Demonstration of a widely dilated internal bladder, sphincter and posterior urethra in the presence of a severe cystitis is also suggestive of tuberculosis.

Conclusions.—(1) The value of roentgenographic diagnosis of renal tuberculosis does not appear to be fully appreciated.

(2) Routine roentgenography in every case in which there is evidence of infection in the urinary tract is advisable.

(3) Shadows may be found in approximately 20 per cent of patients with renal tuberculosis. Such shadows may require the aid of cystoscopic data in their interpretation.

(4) Positive evidence of tuberculosis may be obtained by this method when all other clinical data fail, and when cystoscopic examination is impossible.

(5) Shadows due to renal tuberculosis may be arranged into three definite groups.

(6) Caseated areas in the ureter and prostate may also be outlined.

(7) Pyelography is occasionally valuable, especially in the following conditions: (*a*) in the identification of renal infections of doubtful nature, and (*b*) in the identification of doubtful shadows in the renal area.

(8) The cystogram may also give data of value.

RENAL TRACT

Bugbee and Losee (The Clinical Significance of Congenital Anomalies of the Kidney and Ureter, with Notes on the Embryology and Fetal Development of the Kidney. *Surg., Gynec., and Obstet.*, Feb., 1919, pp. 97-116) state that in the development of the kidney we are concerned with the growth of three definite and distinct organs, which are formed at different stages in the growth of the embryo. These organs are the *pronephros*, the *mesonephros* and the *metanephros*. The first two degenerate, while the third remains as the permanent kidney. The second begins to develop while the first degenerates, and the third begins to develop as the second degenerates.

so that both a constructive and a destructive process is going on at the same time.

The first anlage of the pronephros consists in the pronephric tubules. Each primitive segment stalk throughout the body cavity produces a pronephric tubule, which is composed of a principal tubule, a pronephric chamber, nephrostome canal, and an internal and external glomerulus. By the union of these pronephric tubules a collecting duct or an excretory duct is formed, running the entire length of the body cavity. The development of the pronephric tubules is divided into two portions: first, the development of the pronephric tubules and the collecting duct; second, the development of the terminal portion of the primary excretory canal. The first anlage of the glandular portion occurs in an embryo 1.73 mm. in greatest length. The development goes on so quickly that when the caudal portion is developed in an embryo of 2.5 mm., the cranial sac is beginning to dissolve, so that as the lower portion develops the upper portion degenerates. In an embryo of 4.25 mm. vertex-breech length, the degeneration of the pronephros is well-advanced, but the time of its complete disappearance cannot be definitely stated, since it extends into the territory of the mesonephros. This occurs approximately when the embryo is 4.9 mm. in its vertex-breech length. The blood supply of the pronephros is derived from a ventral arch system which is divided into two groups, a cranial group of aortic arches and a caudal group of original pronephric arteries. During its existence, the pronephros carries on an excretory function.

The mesonephric tubules develop from the same parent tissue as the pronephros, from the stalks of the primitive segment, and make use of the same efferent canal, the primary excretory duct. The principal tubules of the mesonephros, however, usually arise more mesially. The mesonephric anlage begins to develop from the nephrogenic cord, which arises from the primitive segment stalks cut out, as a whole, from the mesoderm in an embryo of 2.5 mm. greatest length. Eight mesonephric vesicles form anteriorly and posteriorly. At the embryo increases in length, the oldest tubules gradually take on various changes in shape, until at 9.5 mm. greatest length they are complete. In an embryo of this length there are from 32 to 34 tubules, consisting of malpighian corpuscle and a secreting and a collecting tubule. In an embryo of 19.4 mm. vertex-breech length, they separate from one another and, as a result of the cur-

vature of the excretory duct, become stronger in order to reach the mesially placed bladder. The malpighian corpuscles are pressed together and the collecting duct of one tubule may serve as the efferent for several. As a further result of the bending of the excretory duct, the orifices of several collecting ducts unite to form a single one. The degeneration of the mesonephros occurs in two periods. The first begins as soon as the cranial growth is complete, that is, in an embryo 6.3 mm. in length, and it is finished in an embryo 6.3 mm. in length, and it is finished in an embryo of 21 mm. greatest length. During the process, the greatest part of the mesonephros at the cranial end is degenerated. The second period comes on so gradually that definite limits are not possible for it. Within this period there occurs a new suppression of tubules and a selection of those that will enter the service of the reproductive system and of those that will persist even in the adult human organism, as the paragenitalis. Estimated by tubules, 57 are degenerated out of a maximum of 83 that develop. The corresponding portion of the excretory duct disappears along with the tubules. From the stage of 21 mm. greatest length onward, all embryos show a rather constant number of mesonephric tubules in the lumbar segment, but these are almost all broken in one or several places. The first mesonephric arteries are formed in the embryo of about 5.3 mm. in length. They arise from the lateral surface of the aorta, pass to the malpighian corpuscles and terminate in these with an enlargement, assuming a spherical shape. The arteries are not paired. In the cranial segment one artery may lie in each segment or in two or three segments, but in the caudal segment the arteries become more numerous. From the sixth thoracic to the third lumbar area the mesonephric arteries persist, and from these are formed the phrenic, suprarenal, accessory renal, internal spermatic, accessory spermatic, and also the branches to the lymph-nodes and sympathetic ganglia in the region between the superior and inferior mesenteric arteries.

The metanephros may be divided embryologically into two portions, the secretory or glandular and the efferent apparatus. The latter will be considered first, namely, the ureter, the renal pelvis and the collecting tubule system, all of which develop from the primary excretory duct. The anlage of the ureter arises as a hemispherical outgrowth of the primary excretory duct, in an embryo sometimes between the stages of 4.5 mm. and 5.3 mm. total length. The

shorter ureter grows at first dorsally, toward the vertebral column, but later, in an embryo of from 8.5 mm. to 9.5 mm. greatest length, it forms a curve, which becomes gradually flatter and the ureter grows cranially. When it gains the dorsal surface of the mesonephros, it lies as the retroperitoneum, surrounded by loose mesenchyma. Here radial outgrowths of the collecting tubule take place and the definite portion of the renal pelvis is reached, in an embryo 8.5 mm. to 13 mm. greatest length, at the level of the second lumbar vertebra. While the ureter is still in the period of outgrowth, the primitive pelvis elongates in the craniocaudal direction and thus acquires its poles, both of which grow out in opposite directions and so begin the formation of collecting tubules of the first order. Later horizontal tubules develop, corresponding to the middle of the renal pelvis, one directed ventrally and the other dorsally. These four primitive tubules become enlarged at the blind ends to the so-called ampullæ. From the various angles of the ampullæ secondary collecting tubules grow out parallel to the future surface of the kidney. Where they attain a certain length, they develop ampullæ from the various sides of which tertiary tubules are formed and so the process goes on up to the formation of the terminal collecting. The formation of new collecting tubules ceases at the fifth month.

The secretory or glandular portion of the metanephros is derived from a group of cells known as the metanephrogenic tissue, which accompanies the ureter in its ascent and which always covers the primitive renal pelvis. The metanephrogenic tissue has its origin in the metanephrogenic cord, which arises from the mesoderm. The tissue breaks up into as many parts as there are collecting tubules, and covers the surface and sides of these. Each ureteric tree and its nephrogenic cap is known as a malpighian pyramid. These pyramids are pressed together and unite to form a single investment over the entire kidney. The lines along which the metanephrogenic tissue passes down from the surface beneath the various pyramids are marked by grooves which limit the area occupied by each pyramid and thus a somewhat lobulated structure is formed. There are at first four pyramids, two pole pyramids and two central ones, corresponding to the central tubules. These primary pyramids divide into secondary pyramids and these in turn, give off subordinate pyramids and thus a finer lobulation takes place.

The uriniferous tubules are formed from a compressed mass of metanephrogenic tissue, which is formed between the old and young tubule, that has first been given off. In this mass a lumen, situated eccentrically, appears and converts the sphere of cells into a metanephric vesicle. The peripheral wall of this vesicle is the thinnest and from this the entire uriniferous tubule, with the exception of Bowman's capsule, is formed. The wall towards the pelvis, or the central wall, forms Bowman's capsule. This anlage of the uriniferous tubule unites with the young collecting tubules, their lumen being continuous. As soon as this union takes place the former assumes an S shape. The lower limb of the S extends from Bowman's capsule, while the upper limb connects with the collecting tubule. The failure of the uriniferous tubule and the terminal collecting tubules to unite is said to be the cause of congenital cystic kidney.

The malpighian corpuscle begins as a shell-like form, becoming gradually spherical in an embryo 19.4 mm. and is complete in an embryo 28 mm. greatest length. An evagination forms at a point at which a portion of the tubule becomes continuous with Bowman's capsule. This evagination increases in size, and the lateral wall of the sphere grows toward it, so that the wide entrance into the shell-like cavity becomes converted into a natural opening through which the *vasa afferens* and *efferens* find ingress and egress. The vascular and urinary poles of the malpighian corpuscles lie opposite to each other.

The development of the cortex begins with the formation of the first generation of the uriniferous tubules, and its increase in thickness depends upon the new formation of additional tubules, and in the second place upon the growth of those already present.

The medulla begins to form after the formation of the definitive renal pelvis. Its increase in length and thickness is due to an increase in the diameter of the individual collecting tubules. During fetal life the medulla grows principally and continues until the seventh year, during which period the diameter of the cortex increases rapidly. After the seventh year both the cortex and medulla develop equally.

From the beginning embryonic connective tissue surrounds the growing ureter, the outgrowing tubules and the metanephrogenic tissue. But this is not considered a capsule until it can be separated from its adjacent structures, which is at first distinctly seen in an embryo of 70 mm. greatest length.

At 7 mm. in length the renal bud lies opposite the second sacral vertebra and its pelvis looks anteriorly; at 10 mm. the upper border of the kidney is at the brim of the pelvis; and at 14 mm. the upper pole is at the third lumbar vertebra. At 16 mm. the kidney has passed the second lumbar line and has rotated 90° on its long axis, so that the pelvis is lateral to the uter and points toward the vertebral column. At 20 mm. the ureter and kidney are in their relatively normal position. During the first half of fetal life the craniocaudal diameter of the kidney corresponds approximately to the first three lumbar vertebrae. In the second half the cranial pole lies at the level of the eleventh rib, and the caudal one descends to the upper border of the fifth lumbar vertebra.

Each renal artery is found from a mesonephric artery. When the kidney has acquired its definite position, it possesses several renal arteries; one becomes greatly enlarged to form a definite artery; the others degenerate or persist as accessory renals. The definite renal artery is either the last vessel of the second group or the first of the third group of mesonephric arteries. In an embryo of 26 mm. greatest length the arrangement of the arterial apparatus is acquired.

There may be complete absence of one or both kidneys. Supernumerary kidneys have occurred on one or both sides. Changes in form, involving both kidneys result in what is generally known as the horseshoe kidney. The earlier the date of fusion the more definite is the line of demarcation. In cases of very late fusion, where the kidney has obtained its normal position, the union may be limited to the capsule. In fusion at the lower pole, there is always a well-marked bridge of kidney parenchyma forming them. The pelves do not fuse because they are already well-developed and independent structures before the parenchyma fuses. When central fusion takes place, the organ lies in the middle line and the ureters emerge ventrally. This type is known as the disc kidney. These kidneys may have two ureters, each having a normal course and presenting a normal trigone, or there may be multiple, incomplete ureters. End-to-end fusion of the two kidneys is quite uncommon. When it occurs both kidneys are placed on one side, generally the lower kidney is not rotated, and the ureter emerges from its anterior surface. This type is known as the sigmoid kidney. Fetal lobulations are sometimes observed in the adult kidney, due to the fact that the

growth of the cortex during postfetal life did not take place vigorously enough to obliterate the depression in the surface, and also that the cortical columns were of such depth that the usual post-fetal growth was insufficient to fill the groove. One of the most common forms of abnormal position of the kidney is that known as the ectopic or pelvic kidney. These kidneys may be found in the pelvis or at the brim of the pelvis. Many of these kidneys do not rotate and their pelves remain anterior. Fused kidneys remain arrested either just above the sacral promontory or in front of the lower lumbar vertebræ. A congenitally pelvic kidney can be differentiated from the acquired one by the length of the ureter and the relation of the vessels.

Insufficient rotation or a failure to rotate leaves the renal pelvis in a mesial or anterior position. The pelvis enters the hilum in the middle third of the kidney or just below it. In a very long kidney the pelvis may run along the entire length of the organ. It may enter the kidney very near the lower pole. There is usually a single pelvis at the upper end of the urinary tract at the posterior site of the hilum and it may be intrarenal or extrarenal. The ureter may divide into two or more branches before entering the hilum. The pelvis may be divided into two main branches. This occurs in about 28 per cent of cases examined.

Change in the form of the ureter may be coëxistant with change in the form of the kidney, or it may be found with normal kidneys. Abnormalities of the ureter may be divided into two classes, the incomplete ureter and the complete double ureter. In the former, the ureter has a common opening in the bladder and in the latter each ureter has its own separate opening. The pelves are always distinct in cases of incomplete double ureter. The ventral ureter arises from the upper pelvis and there is one orifice normally placed. In complete double ureter, the ureter from the upper pelvis has the lower orifice in the bladder, lying somewhere between the higher opening of the dorsal ureter and the opening in the genital duct.

When congenital hydronephrosis is bilateral an imperforate urethra is the most common cause. In unilateral hydronephrosis, stricture of the ureter at its juncture with the pelvis is the most common cause. Complete absence of the ureter and valves of the mucous membrane near the pelvis has also been observed in these cases. The high insertion of the ureter into the pelvis of the kidney, or its oblique

insertion, have been thought by some to be sufficient reason for obstruction. Anything producing intrauterine pressure on the ureter or bladder may be considered a cause of obstruction. Supernumerary vessels in close relation to the ureter at its origin have been observed in this condition.

An inspection of the bladder will demonstrate only the number of ureteral orifices present, unless one or more be hidden by pathological lesions. Shadow catheters in the ureters, may demonstrate anomalies in number and position of the ureters, but a pyelo-ureterogram will be necessary to demonstrate a renal or pelvic anomaly. Of practical importance is the fact that such anomalies do exist and that organs which are the seat of such anomalies are approximately prone to pathological lesions.

E. Rautenberg, (Pneumoperitoneal Roentgen Diagnosis of the Kidneys. *Berl. Klin. Wchnschr.*, 1919, lvi, No. 9, p. 201) states that the method is so simple that he does not use special instruments. A fine cannula and double bellows are sufficient to fill the peritoneal cavity with air. The kidney is best seen when the patient lies on his side, as the convolutions of the small intestine sink down by gravity. The field of vision is limited below by the spinal column, and the kidney lies free behind the air-filled portion of the abdominal cavity. Sometimes, however, the upper portion of the right kidney is covered by the liver, but even then the outline of the kidney can be followed. Such a picture is of great importance, for by the usual methods the kidney can never be seen clearly and its form and size are quite indistinct. To judge of the size and changes of form of the kidney, it is advisable to keep always the same focal distance (60 cm.). Displacements of the kidney are clearly shown by this method. The diagnostic procedure described forms an important aid to functional diagnosis. At the close the author discusses several practical cases of renal tumors and kidney stones.

(To be continued)

SECTION ON NEUROLOGY AND PSYCHIATRY

GOSLINE, H. I.: **The Anatomical Implications of the Introspective Psychology.** *The Journal of Nervous and Mental Diseases*, Sept., 1920, lii, No. 3, p. 202.

The stimulation may be optical, auditory or arise from the lower senses, or it may be sensory.

The perceptions following stimulation call forth reaction, association and inhibition. For instance, in optical sensation a color is not elementary but complex; brightness sensed as white, and darkness sensed as black, are elementary. The elements in the auditory stimulation are tones and noises. The beautiful smoothness of certain tones is not characteristic of the tones themselves, but it is an added mental experience. The stimulations in taste, smell or touch are concerned with our bodily interests only. They may be pleasant, but only the visual and bitter stimulations in taste, and nine large groups with their subdivisions in smell, varying degrees of pressure in touch, heat and cold, all comparatively simple stimulations, are in play in the lower senses.

The sensory stimuli from within the body also influence the central and centrifugal processes as much as the messages from without.

Hunger sensations from the stomach and fatigue from the muscles may have greater influence than visual impressions and sounds. They are less sharp and distinct in quality and in local differences than sensations from without.

Psychologically, the most important of the internal stimulations are those resulting from the movements of the body. They play a great part in the perception of space and time, in attention, emotion, consciousness of self, and in will. They consist mainly of movement and tension.

"The chief feeling sensations are pain and lust." They may be dissociated from the subjective disliking and liking. It is the manifoldness of these stimuli and the greater manifoldness of their combinations, which make up the material of mental personality.

An association is a psychological element, the mental process in it is the reawakening of earlier sensations. It is not the same as certain peripheral processes, such as the sensation of light, or the perseverance of a central excitement like a continuation of a melody, or a fixed idea. "An impression awakes a characteristic feeling tone by habit and in this way a response to a single stimulus may be a proper one for a total setting. This in its turn may become a real central excitement, and the starting point for new associations."

First as mutual inhibition is present in fusion, so association takes place only between impressions, which have been in so-called contiguity, or in sufficient elements to produce the feeling of similarity, even if differing in some essential elements.

A difference is felt between the present impression and the associated reëpearance of the past. "The conditions of association are the recentness, the frequency and the impressiveness." The associations are the starting point of actions.

Introspective psychology is interested in reaction only so far as physical action concerns the physical experience. "Impressions and associations cause muscle contractions and the sense of these actions is mental states which contribute much to conscious experience." The outer effects of these actions are perceived and the ideas of these effects become associated with the central states which led to the actions.

"The action of the organism thus appears to be of greater importance to the mental life than even the centripetal process."

The preëstablished modes of action in the organism work toward a continuation of a helpful thing or protection from injury. The desirable is continued, the undesirable stopped. The same applies to attention. The reaction to the associative reproduction or memory, and, in a more differentiated way, the response to words as the symbolic presentation of sense experiences, are similar.

Repetition decreases resistance in the motor paths, and gives a feeling of familiarity, a highly complex reaction system ensuing. The reactions in the voluntary as well as the smooth muscles are a source of sensory stimulations; they are the chief carriers of associative connections to the mind.

They are important in perception, attention, perception of space and time, in emotions.

"By the association of the sensory effect of an action with the mental situation which leads automatically to an action, an idea of the effect is produced, and this raises the automatic to a will action."

Action consists of flexor and extensor response. Involuntary action is either contraction or dilation, an accelerator or a depressor effect, a secretory action or a secretory inhibition.

Connections between the sensory arrival platforms and the cells of origin of the motor nerves have long been postulated in the intercalary neurone of the spinal cord in lower animals, but introspective psychology considers them to be the *sine qua non* in the human brain. The cellular stratification of the cerebral cortex in this way becomes lucid.

We must now assume that the cells of the sensory cortex throughout the brain are sensorimotor, that is, intercalary in function. They are all cells of origin of neurones which connect the terminal arborizations of the axones of the sensory nerves with the dendrites of the motor nerves. The differences in size which give rise to the appearance of from three to eight strata are due to the fact that the cells give origin to longer or shorter axis cylinders, that is, they connect with from three to eight strata of motor cells."

The action theory assumes connections between the sensory arrival platform of the muscle and kinesthetic sensations, and the sensory arrival platforms of all the other senses. The stratification of these areas is due to the difference in length of the neurones; but the cells give rise to fibers connecting the terminal arborization of the axones of the nerve-cells of muscle and kinesthetic senses with the dendrites of the cells of the sensory areas. One layer may go to the motor area, thus corresponding to the intercalary neurone in the spinal cord.

Motor areas then consist of cells of origin of sensorimotor fibers, with the exception of the areas for the reception of the muscle and kinesthetic sensations.

Perceptions, memories and ideas can effect the emotions, and it is possible that an anatomical connection between the cortex and the thalamus exists; but it is difficult to say whether that connection is from each sensory area or only from the areas of muscle and kinesthetic sensibility. The centers for involuntary action exist in the

ganglionic chain and in the thalamus. It is perhaps, on the other hand, possible that the thalamus affects the cortex by distributing "the equilibrium in the vasomotor and glandular apparatus so that the connection is physico-chemical rather than anatomical."

As association is produced by the reawakening of earlier sensations or indirectly by the awakening of the feeling-tone, it is not necessary that all the same paths be stimulated in the reproduced perception. It is an association by similarity. This does not require paths between the cortical centers of the various sensations, as is generally supposed. It is an association by similarity and contiguity. Even in the simplest mammals no fibers have been traced from one sensory center to another. The theory of association tracts has been reached by conclusions philosophical.

The cingulum is the association tract which arches above the corpus callosum from the frontal lobes to the uncus. It must be composed of sensorimotor fibers and sensorisensory fibers. The sensorimotor fibers composing it would then be:

<i>Anatomically</i>	<i>Physiologically</i>
Uncino-precentral	Olfactory-motor
Occipito-precentral	Visuo-motor
Parieto-precentral	Estheto-motor (?caloric motor)
Postcentral-precentral	Musculo-and kinestheto-motor
Fronto-precentral	?Algesio-motor
?-precentral	Gustato-motor

The sensori-vascular-glandular fibers, if they exist, should be considered with the sensori-motor fibers. As components of the so-called association tracts with particular reference to the cingulum they would be:

<i>Anatomically</i>	<i>Physiologically</i>
Uncino-thalamic	Olfactory-affective
Occipito-thalamic	Visuo-affective
Parieto-thalamic	Esthetic-affective (?caloric-affective)
Postcentral-thalamic	Musculo-and kinestheto-affective
Fronto-thalamic	?Algesio-affective
?-thalamic	Gustato-affective

The sensori-sensory fibers in the cingulum should be:

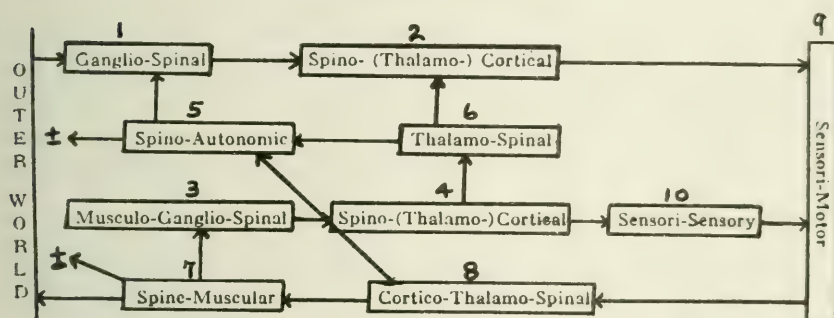
Anatomically

Postcentral-uncinate
Postcentral-occipital
Postcentral-parietal

Physiologically

Musculo-and kinestheto-olfactory
Musculo-and kinestheto-visual
Musculo-and kinestheto-? algesic
(? caloric)
Musculo-and kinestheto-? algesic
Musculo-and kinestheto-gustatory

On page 230 the author gives the following illustration of the relations:

THE INDIVIDUAL

It is not possible to give more than snatches from the many suggestions put forth in the original article.

BRUN, R.: **Clinical and Pathogenic Studies on Lumbago** (Beitrage zur Klinik und Pathogenese der Lumbago). *Schweizer Archiv fur Neurologie und Psychiatrie*, 1920, vii, No. 1, p. 63.

In Switzerland, since institution of compulsory accident insurance, traumatic lumbago has frequently been pleaded by the insured, and has in consequence been studied more exactly by the clinician. In spite of these efforts the clinical manifestations and the pathogenesis have not been clearly defined.

Pometta, Kaufmann, Patry, *et al.* agree that lumbago has usually no positive clinical signs.

The author however has been able to find, in a great majority of cases, pathological changes in the region of the lumbar muscles, characteristic of lumbago.

Lumbago is a collective name for a number of very heterogeneous pathological conditions, and should not be considered a diagnostic expression. There are three principal types of lumbago, the myogene, the osteoarthrogene and the neurogene, but they are by no means clearly defined, not even the location being established beyond doubt.

Usually traumatic myogenous lumbago is considered to be of rheumatic origin. In a medical sense this may often be true, trauma giving rise to lumbago in muscles which have been afflicted by rheumatism previous to trauma. In the sense of the insurance claim this type was not immediately caused by the trauma. Lumbago traumatica, on the other hand, is viewed by most clinicians with scepticism. Subcutaneous straining, rupturing of muscles and tendons do occur, but very rarely. Likewise hematoma and hernia may result from excessive, sudden or awkward movement. The younger authors are of the opinion that in normal muscles, these injuries occur only in cases of very grave accidental trauma, and that many times muscles that are not normal, and affected by rheumatism, alcoholism, or over-exertion, may be injured by everyday insults as they occur in labor.

The osteo- or arthrogenous site of the lesion is looked upon as a cause of traumatic lumbago. In some cases there may be a distortion of the lumbar spine, and then movements, which are not excessive beyond everyday exertion, may bring on lumbago. These cases are not considered as being entitled to insurance claims.

In the neurotic type, Eulenberg and Schmidt have shown up the great resemblance prevailing between lumbago and ischias. Erben speaks of neuralgia of the N. clunium, and Eulenberg has taken a propagation of an inflammation, and a secondary form of perineuritis sacralis into consideration.

In 12 cases out of 15 of lumbago or lumbalgia in the author's polyclinic for nervous diseases, he noticed a positive finding. Some of these cases had been but slightly injured, but were of a grave subchronic type, and the author thinks that they are by no means rare. In the majority of cases they show objective pathological changes in the lumbar region.

The pathological changes were always unilateral. Only in 2 cases out of 12 was there a typical clinical picture of subcutaneous muscle-rupture. In the other 10 it was that of a lesion of the posterior rami of the lumbar and sacral nerves. In all a one-sided atrophy of the M. sacro-spinalis with considerably diminished faradic irritability was noticed.

In some cases sensibility in the terminal rami of the N. clunium superiors was noticeable.

In all cases during the course of the disease secondary affection of other sensory nerves was present, especially in the N. ischiadicus, and sometimes in N. ileo-inguinalis. This may be due to irradiative irritation of the sensory fibers in the spinal ganglia. Most of the subchronic and chronic cases of lumbago are evidently due to perineuritic changes in the posterior rami of the lumbar nerve.

The author adds that lumbago is often associated with neuroses, and that these neuroses always prove to be of the type of sexual hypochondria.

SANTA CECILIA, T.: A New Complementary Sign in Facial Palsy
(Un novo signal complementar na paralyisia do facial). *Brazil Medico*, July 10, 1920, No. 28, p. 444.

The author describes a new sign which he considers useful in the diagnosis of facial paralysis. The sign consists of an elevated position which the cornea takes on the affected side, when the patient is ordered to look downward. The author has established the presence of the new sign in many cases in which a peripheric lesion of the nucleus of the seventh nerve was suspected.

C. F. ARROYO.

DIDSBURY, G.: Pathological Physiology and Treatment of Migraine
(De la physiologie pathologique et du traitement de la migraine).
Le Progres Medical, Oct. 2, 1920, p. 429.

Migraine is the only chronic headache which is unilateral. It occurs in paroxysms, the patient, during the intervals, being in good health.

Neuralgia and migraine are often confounded. Neuralgia is located in a distinct anatomical tract, however, and the pain remains the same. It does not wander as does, for instance, sciatica, which lasts twenty-four hours in the right limb, recurring in the left limb three days later.

Migraine is located either on the right or left side, and returns in a cyclical manner. It has a prodromal stage, definite onset, an evolution, and lasts a varying length of time, generally twelve hours, then coming to a stop. The characteristic features are its onset during infancy, its unilateral character of pain, the paroxysmal attacks, and its aggravation at puberty. The onset may be ophthalmic or temperofrontal, or both. The temperofrontal is the most common.

The intensity of pain brings on the attack, and one can start an attack of migraine by pressing on certain points where hyperesthesia is constant, even during the intervals. These points are located in the superficial nerves at the nape of the neck, the head and face, mainly at the point of emergence from the bone and their bifurcation. They apply to the superficial branches of the cervical plexus, and the superficial branches of the trigeminus. Hyperesthesia can be traced back to Arnold's ganglion, to the mastoid and auricular branches.

HARTEL, F.: Results of Intracranial Infections in Trigeminal Neuralgia (Ueber Danererfolge der intrakraniellen Injektiionsbehandlung der Trigeminus Neuralgie). *Deutsche medizinische Wochenschrift*, May 6, 1920, No. 19, J. 46, 517.

During the last seven years the author has employed alcoholic injections into the trigeminal nerve through the foramen ovale in 50 cases of trigeminal neuralgia, and he is convinced that a permanent cure of this condition can be achieved with this method of treatment. He has found that some patients have remained cured for over seven years following a single injection. Recurrences occur only when partial anesthesia is established, but when the injection is repeated the recurrences can also be cured.

Before resorting to this mode of treatment, Hartel always makes sure that the diagnosis of trigeminal neuralgia is as far as possible a correct one. He has found that hysterical neuralgia and borderline cases are not proper subjects for the infection treatment. In order to obtain the best possible results, he determines in advance by means of the x-ray the size of the foramen ovale and whether or not there are any anatomical abnormalities in that region.

In 41 intracranial treatments (about 70 single injections), in 37 patients between June, 1912 and July, 1914, and between December, 1918 and August, 1919, the results were as follows: Total anesthesia was accomplished in 21, partial in 16, and questionable in 4. Twenty-five remained free from recurrences; of these, 2 remained free for seven and one-half years, 5 for six years, 1 for five years, 1 for four and one-half years, 1 for three and one-half years, 3 for two years, 7 for one year, and 5 for one-half year. Twelve patients had recurrences. The causes for the recurrences were as follows: In 5 cases only partial anesthesia was obtained, owing to technical difficulties during the injection; in 2 partial anesthesia, only, was resorted to purposely, and 5 did not care to submit to total anesthesia. In 4 of the 12, reinjections were followed by cures; the remaining 8 did not return for further treatment. In Hartel's series there were 4 hysterical cases, 2 of which were improved and 2 were not relieved at all.

Partial anesthesia, omitting the ophthalmic nerve, is technically feasible and is to be preferred in mild cases to prevent corneal injury, in spite of the fact that such partial anesthesia predisposed the patient to a recurrence of the neuralgia.

M. KESCHNER.

DERCUM, F. X.: **Somatic Symptoms in Nervous and Mental Diseases.** *New York Medical Journal*, March 6, 1920, cxi, 402.

According to Dercum, somatic, or visceral phenomena in diseases of the mind and nervous system present themselves under three different conditions. First, they may be directly due to and symptomatic of the underlying nervous affection. This is best seen in neurasthenia; the deficient innervation and poor inhibition gives rise to symptoms referable to the circulation, digestion, sexual apparatus and internal secretions. Similar conditions are met with in hysteria and hypochondria. Failure to properly evaluate these symptoms leads at times to wrong diagnoses and unnecessary surgical operations.

When we turn our attention to organic nervous disease such as tabes and paresis, the visceral symptoms present are also directly expressive of and are, as Dercum says, "part and parcel of the ner-

vous disease itself." Operations on patients with tabetic crises or pains for supposed visceral disease are unfortunately too common. One of Dercum's paretic patients had had four laparotomies. He has also seen a case of cerebral tumor in which the vomiting present had led to surgical intervention of the upper abdomen.

The second condition is one in which the nervous symptoms are present, but are secondary to visceral disease. For instance, general weakness sooner or later becomes a marked feature in the symptomatology of visceral disease. This weakness, however, is not like that of neurasthenia, but is accompanied by pains and other symptoms which direct attention to the organs involved. The exhaustion and toxemia resulting from visceral disease may also give rise to psychic disturbances, such as confusion, stupor and delirium.

A third condition is one in which primary nervous disease and primary visceral disease coexist in the same individual; for example, tumor of the brain and hysteria, or disease of the pelvic organs and hysteria. The diagnosis of such conditions may at times be extremely difficult. The most difficult situation of all, however, occurs when the patient presents symptoms of visceral disease and is at the same time developing a psychic disorder. The one or the other condition may be overlooked.

To illustrate the last condition, Dercum reports in detail the case of a twenty-one-year-old man whose early history suggested a traumatic lesion of the esophagus; esophagoscopy seemed to confirm this. Later it appeared that the symptoms suggested hysteria, particularly as they disappeared for a time under suggestion. Further observation led to the conclusion that the case was one of *dementia praecox* in an early stage, the symptoms of which at the time he first presented himself were just beginning to reveal themselves.

M. KESCHNER.

PARKER, H. L.: **Juvenile Tabes.** *Archives of Neurology and Psychiatry*, 1921, v, No. 2, p. 121.

Even in 1900 the existence of juvenile tabes dorsalis was questioned by E. von Leyden and K. Gumpertz. Remar had described the first case in 1885. Juvenile tabes is rare in comparison to juvenile paresis, and there are probably 10 cases of juvenile tabes.

On the other hand, adult tabes is more common than adult paresis. The juvenile form may produce any or all symptoms of adult tabes. There seems to be a slight preponderance of the disease in girls, although in the adult the male is more frequently affected. The number of cases recorded of juvenile tabes, due to acquired syphilis, is relatively small compared with the number due to hereditary syphilis. Parents of juvenile tabetic patients are very often tabetic or paretic. In some cases a definite neuropathic family tendency can be demonstrated, which is productive of tabes or paresis. "The question of the relative importance of a neuropathic heredity and of a possible specific syphilitic nerve virus is yet to be settled."

The author studied 7 cases. In all there was Westphal's sign; in 6 diminution of sensibility was found; in 4 the pupils were immobile; in 3 Argyll Robertson pupils were observed; in 3 optic atrophy; in 3 crises; in 3 lightening pains; in 3 incoördination; in 3 signs of congenital syphilis, or syphilis outside the central nervous system; in 3 tryptonia; in 2 incontinence of urine. In 1 only was ataxia present. The serum Wassermann test was triple positive in all but 1 case. In 3 of the 6 cases, in which spinal fluid examination was made the serum Wassermann was positive. The author did not find vesicle incontinence as frequently as reported in literature. Ataxia is rare in literature and in the above mentioned cases.

BRIAND, M., AND ROUQUIER, A.: **The Infectious or Toxic Origin of Inorganic Motor Disturbances** (De l'Origine Infectieuse ou Toxinique Probable de Certains Troubles Moteurs de Type Anorganique). *La Presse medicale*, July 14, 1920, xxviii, No. 48, pp. 473-4.

In the recent epidemic of encephalitis, the authors observed several patients in whom various motor disturbances were the most important symptoms. These were:

- (a) Diffuse myoclonic twitchings.
- (b) Choreiform movements.
- (c) Localized ties.
- (d) Pseudo-athetoid movements.
- (e) Rhythmic muscular contractions.

Many functional motor disturbances, hitherto designated "hysteria", are probably caused by a very much attenuated infection, or by a toxemia resulting in a disturbed metabolism of the nervous elements.

The cases seen by the authors are probably due to an attenuated infection with the etiologic organism of encephalitis.

S. KAHN.

LEWIN, J.: **The Problems of Hysteria** (Das Hysterie Problem). *Monatsschrift für Psychiatrie und Neurologie*, 1920, xlviii, H. 4, p. 204.

The author says that we must learn to enter into the apperception of the diseased mind without prejudice or precept. That which has been called "Verdrängung", repression from mind, is the incompatibility of the wish to discard, and the impossibility to do so. This incompatibility brings about pathologic complexes of impressions which vary according to the respective intrapsychic conception. Specific complexes of perception which are clearly determined as to contents may consolidate into compulsory thought, compulsory action, a prevalent idea, etc.

It is very difficult to disentangle the limbs in the chain of experiences after this consolidation has once taken place. Many physicians kept looking for former single experiences, instead of trying to see in the resulting complex unity the traces of former experiences. This consolidation leads to an ever-increasing specific taint in the total of experiences, to the detriment of the possibility of ever retracing the primary impressions.

This type of consolidation is but a pathologic grade of a widely spread characteristic of our mental processes, that is, of the sensations experienced, which in time become simplified with repetition, but retain their characteristics as an entity. Aversions, moods, affects, tendencies, judgments will influence actions, without our retaining the memory of the single composing experienced sensations.

If, furthermore, there is a desire to forget certain connective limbs, in which, of course, the patient does not altogether succeed, we have the key to the pathology of these complexes of impressions. The author draws a comparison: if we think of a melody, the be-

ginning of which has been forgotten, a similar thing happens to this pseudo-compound. If it does come up again, it is associated with a specific taint of sensation, just like the beginning of a melody that has slipped the mind.

Hysteric reaction does no longer represent a purely intrapsychic process, and Kretschmer calls it "Ausweichung", avoidance. There are, also in this case, connections in the series of causations, but they are of a different nature, because they are not simply connected to the primary occasioning cause, but are also in connection with the physiologic characteristics of the especial individual, which appear in the form of complications or sequelæ of the experienced sensations.

This short sketch of the characteristics of hysteric reaction may show up the pathologic action in this disease. Repression is not perfect and the memory retains part of the sensations in a distorted shape.

The paresis, blindness, narrowing of consciousness in the "Dämmerzustand", hypnogogic state, the loss of memories in hysterical amnesia, the unconsciously not speaking to the point, they all are functional defects in the conductive process of the ganglia. They are not factors to be interpreted as components in the process of actions, but they are retained.

It is quite natural that the patient should in this defective state of coördination of memories and sensations, incline to exaggeration in his acts, or so to speak, to rid himself of every doubt in this defect.

BUCHANAN, J. A.: **The Familial Distribution of the Migraine-Epilepsy Syndrome.** *New York Medical Journal*, 1921, cxiii, No. 2, p. 45.

The author noticed in the histories of patients treated at the Mayo Foundation that migraine occurred in a great many cases of epilepsy, either in the immediate ascendancy line or in a side line of the family. A certain class of man is characterized by painful or convulsive seizures, "which must be chemical in their substrata." The determiner of an hereditary character cannot be anything but a chemical substance, "since everything that results from the activities of the germ-plasm is chemical in nature".

In epilepsy seroreactions have been shown to vary with the progress of the condition; the spinal fluid contains extractives below normal, increased ash and chlorid content, and decreased albumin content. Postconvulsive albuminuria is associated with an unknown acid production; there is an abundance of phosphoric and uric acids.

On the other hand convulsions have been produced in the epileptic by administering ammonium acetate or carbonate, unless the patient was under bromid medication. The epileptic lacks nitrogen equilibrium.

Furthermore there is a diminution or absence of finer fluctuation in the voice of these patients, there is an inflexibility, rigidity and monotony of speech, which does not occur in any other organic conditions yet studied.

Thirteen of 44 epileptics had migraine as an alternating, preceding or combined condition. Patients with so-called arrested epilepsy had migraine as a replacement condition. The transmission of migraine and epilepsy show an almost identical ration.

Migraine shows a mendelian ratio of 3.08 to 1. In previous investigation of migraine in relation to epilepsy, 75 per cent of 128 patients studied, had migraine in their ancestral or personal history.

Forty-six epileptic families were studied. Either the father or the mother of 35 patients, that is, 75 per cent, had migraine; 6 patients, that is, 13 per cent, had no knowledge of migraine or epilepsy in the family; and 5, that is, 10 per cent, had a heterozygote parentage.

In these 46 families there were 262 children, of whom 198 were normal, 64 had epilepsy or migraine. This shows a mendelian ratio of 3.09 to 1.

Where two pure strains of migraine were crossed all children had migraine. In one family a woman with migraine was mated with an epileptic. All their children had migraine; one also had epilepsy, which alternated irregularly.

It is evident that the advice to epileptics to avoid marriage in a greater degree is applicable to those suffering from migraine.

INTERNATIONAL MEDICAL DIGEST



Vol. II

APRIL, 1921

No. 4

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	290
Section on General Medicine - - - - -	291-328
Section on Laboratory and Research - - - - -	329-344
Section on Pediatrics - - - - -	345-354
Section on Roentgenology and Electrotherapeutics - - - - -	355-370
Section on Neurology and Psychiatry - - - - -	371-384
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-xiii
Index of Subjects - - - - -	xiii-xxxiii

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1921, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITZ
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATSON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

APRIL, 1921

No. 4

SECTION ON GENERAL MEDICINE

VERGELY, T.: **Colloidal Therapy** (La Therapeutique colloïdale).
Journal de Medecine de Bordeaux, Feb. 10, 1920, No. 3., p. 64.

The author suggests the word *colloido-therapy* to denominate the new line of treatment based upon colloidal metals, and laments that the literature dealing with the use of them in the treatment of disease is not very extensive. What is a colloid? According to Graham, the characteristics of a colloidal substance are weak diffusibility, and absence of dialysis. The constitution of a colloid, as revealed by the ultramicroscope, is a granular one. The size of these granules varies from six micromicrons to one hundred micromicrons. They are suspended in a liquid, and present brownian movements, which disappear when flocculation occurs. Rebiere describes a colloid as "an heterogeneous system formed of micella which contain an electric charge of ionic origin in stable suspension in a liquid". On account of their granular character, the colloids present an enormous surface of contact. Hence, for instance, a liter (2.1133 pints) of a solution of colloidal gold containing 0.50 cgs. (.0772 grain) of the metal represents a surface of 150,000 sq. cms. (2325 sq. ins.), while the same amount of gold in a compact state has a surface of only 50 sq. mms. This extensive multiplication of the surface is, according to Bredig, the cause of the catalytic power of the colloids. Bredig called them *inorganic ferments*, and Robin called them *metallic ferments*. Similar to the

organic ferments, the colloids present inhibiting and activating substances.

The colloidal granules possess on their surface a double sediment (couche) of ions fixed by absorption. This condition is necessary to the stability of the colloidal suspension, since when any influence breaks this double sediment, the granules agglomerate, and the suspension loses its colloidal properties. That is what happens when they are submitted to the action of the electrolytes. The granules lose their double sediment by neutralization of the external zone, and *flocculation* occurs. The colloids of different sign destroy one another, but the same excipient may contain two colloids of the same sign.

The colloids are obtained in two different ways: by the condensation method, and by the division method. The first method starts from a solution of the particles which are condensed into ultra-microscopic granulations; this is done in a chemical way. The colloids thus obtained are *chemical colloids*. The second method takes the substance as a solid, and pulverizes it by mechanical means in particles small enough to stay in suspension in water. Then the suspension is treated electrically. Colloids of this kind are called *electric colloids*. The chemical colloids can be heated up to 100° C. (212° F.) and thus sterilized, while the electric colloids cannot be heated above 65° or 70° C. (149° or 158° F.). To make a colloidal suspension isotonic, sodium chlorid is used, but this ought to be done only immediately before using the colloid. The *collobiases* do not seem to be metallic colloids, but only mucilage into which the metal has been introduced in small particles.

The following properties are common to all colloids:

Toxicity.—This is weak. According to Henri and Gompel electrargol is only toxic at the dose of 4 mgs. (.0616 grain) to the kilogram (15432.3487 grains) of animal. According to this the lethal dose for the man would be 28 cgs. (4.3204 grains), or 700 c. c. (23.67 fluidounces) of the solution generally used. The collobiases are very much more toxic.

Absorption and Elimination.—Henri and Gompel proved that the metal or the metalloid in colloidal form can be found in all liquids and tissues of the organism except the spinal fluid. The method of absorption is still unknown. The colloidal granules are taken up by fagocytes, which convey the granules to the liver and

to the kidneys at which points they are discharged, and finally elaborated and eliminated. Elaboration is equal for all colloids introduced into the organism, and consists in the destruction of the colloidal state. Elimination of the colloids is very slow, as it requires forty-eight hours from the time of administration to detect colloids in the bile or the urine.

Action upon the Temperature.—This varies according to the form of injection. When the injection is hypodermic or intramuscular, the rise in temperature is almost imperceptible, but when the colloids are introduced intravenously, the rise of temperature reaches 2° or 3° F. This reaction is preceded and accompanied by chills, headache, dizziness, nausea, and sometimes profuse sweating. When the reaction ceases, a state of well feeling ensues.

Action upon Circulation.—According to Robin and Bredig all colloids increase the blood-pressure. This hypertension persists from twenty-four to forty-eight hours, and the pressure becomes normal afterwards.

Action upon the Blood.—The mercurial and argentic colloids seem to be hemolytic, while the gold and platinum are hemopoietic. Upon the lymphocytes and polynuclear neutrophilics, the colloids act in a frankly leukolytic manner.

Action upon the Metabolism.—According to Robin the colloids favor the respiratory metabolism and the nitrogenous metabolism. They increase the introörganic oxidations, as well as secretion and elimination.

Action upon the Nervous System.—This action is proved by the chills, headache, etc.

Antitoxic Power.—This depends upon the catalytic properties of the particular emulsion.

Bactericide Power.—All colloids possess a very remarkable bactericidal power *in vitro*. The only exception to this is the gold collobiase. A culture medium containing colloidal silver in the amount of 1 in 80,000 will remain sterile after inoculation with pneumococci. Colloidal mercury in the amount of 1 in 132,000 stops the growth of bacteria, a thing that bichlorid of mercury fails to do. But this bactericide power is not equal in all colloids; it must be admitted that the bactericide action of the colloids is only secondary, because of the leukolysis and of the leukocitogenesis which the colloids provoke.

Specificity.—The colloidal metal keeps its specificity and this mere fact is a reason for the convenience of multiplying the colloidal preparations. It acts first by its catalytic power, and, when precipitation occurs, the original metal or metalloid exerts its therapeutic force.

How to Use the Colloids.—The colloids are generally used by intravenous hypodermic or intramuscular injections. The intravenous injection discloses the most intense reactions. The hypodermic injections are generally very painful, and when injected intramuscularly the colloids may give rise to indurated nodules which are generally transitory and do not involve any serious condition.

The author passes the different colloids in review, starting with silver.

SILVER.—This was the first metal used systematically. It gives the results common to all colloids, in addition to those depending upon its antiseptic properties. This is a general remark that can be applied to all colloids.

(a) *Collargol.*—This was discovered by Carey Lea. Credé used it in a 10 per cent ointment. It gives good results in furunculosis, phlegmonous tonsillitis, lymphangitis, osteomyelitis, and erysipelas. In bronchopneumonia Rocaz uses a collargol ointment (1 in 15) in injunctions applied in the axillary region. For the disinfection of fistulæ, collargol can be used in suppositories or sticks. A 1 per cent solution of collargol gives good results in otitis, cystitis, conjunctivitis, and also in the ophthalmic infections of the newly born. Collargol can be used in chronic arteritis and in gastro-intestinal troubles of infancy. Good results have been obtained by using collargol enemas in the treatment of typhoid fever. Netter and Gaptan observed good results in the treatment of pneumonia by injecting intramuscularly a 2 per cent solution of collargol (the first day they gave six injections of 2 c. c. [32.4 minims] each, the second day four injections, the third three injections, and the fourth day two injections). Souleyre, Sicard, and Lucas have used collargol in the treatment of Malta fever. Netter used intravenous injections of collargol in hypertoxic diphtheria, and Bonnairs used such injections in puerperal infection. Patein and Rollin have reported a case in which death occurred after the intravenous injection of 5 cgs. (.7715 grain) of collargol. Intraspinal injection of col-

largol in meningitis has given good results. Collargol has also been used to treat ureteritis in all its forms.

(b) *Silver Metabiase*.—This is a pure nonisotonic electric colloid, containing 30 cgs. (4.629 grains) of silver per liter (2.1133 pints). Its catalytic effects are very intense, but it is hard to keep. Sometimes it has a hemolytic action. Robin and his pupils have used it with success in pneumonia and acute rheumatism, by intramuscular injection of 10 c. c. (2.71 fluidrams). Triboulet uses it in bronchopneumonia and phlegmonous angina. Thenveny used it with good results in puerperal infection, injecting it by vein.

(c) *Electrargol*.—This is a brown liquid containing 0.40 per 1000 of silver. It has to be made isotonic at the moment of using by the addition of saline solution. It has been used in all infective diseases intramuscularly and intravenously, and in many cases it gave very favorable results. Associated with adrenalin it has been used to combat cholera. On ophthalmology many authors consider it superior to any other argentic compound.

GOLD.—(a) *Gold Metabiase*.—This colloid was discovered in 1902. It has been used in pneumonia hypodermically, 10 c. c. (2.71 fluidrams) of a solution of 30 mgs. (.462 grain) in 1000 c. c. (271 fluidrams). In influenzal meningitis it has given very good results.

(b) *Electrauro*l.—This is an isotonic liquid of violet color, and contains 0.25 per 1000 of gold. It has given excellent results in the treatment of grip, typhoid fever, as well as in malarial cases of old standing. The reactions are more intense than those of electrargol.

(c) *Gold Collobiase*.—This is not a real colloid, but a mucilage containing pulverized blue gold oxid. According to Bosquet its toxicity is weak. It reduces the temperature in typhoid fever, and has a manifest antitoxic action; it is also useful in paratyphoid. The injections are made intravenously, or intramuscularly, if a too intense reaction is feared. It is contraindicated in cardiac weakness, myocarditis, perforation of the intestine, hemorrhages, deep intoxication, and when the temperature is above 104° F. (40° C.).

PLATINUM.—Robin and Bardet used platinum in its colloidal form in the treatment of pneumonia, bronchopneumonia, acute rheumatism, and infectious pseudorheumatism, and they obtained results similar to those produced by gold and silver colloids. It has also been used in typhus with good results, and with doubtful results in pneumococcic meningitis and in pulmonary tuberculosis.

PALLADIUM.—The colloids of this metal have given good results in acute infections. The *palladium hydrosol* was employed by Robin in a case of serious diabetes, and eliminated the sugar. Tissier has employed *electropalladiol* against obesity. MacDonagh used *pal-lamin* with very good results in the treatment of gonorrhea in which other agencies had given poor results.

RHODIUM.—The first rhodium employed as a colloid was rhodium B. It contains 0.20 per 1000 of rhodium in suspension, and some salty bodies in true solution. It has been used to combat all kinds of infections, abscesses, pyemic arthritis, acute rheumatism, and endocarditis. According to Duchamp and Marsala, in the cases of pulmonary tuberculosis with high temperature, *lantol* (colloidal rhodium) will decrease temperature and stop hemoptysis. It has been used also with very good results in tuberculosis of the bones and in malaria. *Electrorhodiol*, an electric colloid of rhodium, is very seldomly used, and the benefits which it produces are slight.

MERCURY.—Mercury begins the series of the specific colloids.

(a) *Electromercuriol*.—This contains 1 per 1000 of mercury and possesses the same therapeutic properties as the common mercurial preparations, although, when it is administered in the same doses, it seems to be less toxic. Balzer has obtained very good results with this in the treatment of all stages of syphilis. Intolerance to it is very rare, and even in patients with very poor teeth no intoxication phenomena were observed. Intramuscular injections are not painful. Intravenous injections are very well tolerated by the patients, and never produce a violent reaction. Electromercuriol has been used with very good results in syphilis; 5 to 10 c. c. (1.35 to 2.71 fluidrams) are injected daily from twelve to twenty days; a rest period of from twelve to twenty days follows. Electromercuriol can also be used intraspinally, an injection of from 1 to 5 c. c. (16 minims to 1.35 fluidrams, being made every three or four weeks. Other mercurial colloids are: *hydrargyrion*, *hygrol*, and *sulphhy-drargyre collobiase*. The latter is a colloid containing equal amounts of sulphur and mercury. It has been used with good results in all forms of rheumatism, especially in syphilitic subjects. From 1 to 2 c. c. (16 to 32.4 minims) of the substance are injected daily by vein for ten days. The injections produce a slight congestive and feverish reaction; this is due to the sulphur. Crooke's *chemical colloidal mercury* is very concentrated (10 per cent) and has been

used by MacDonagh in syphilis in doses of from 3 to 15 c. c. (48.6 minims to 4.06 fluidrams). *Calomelol* has been used externally without very good results.

COPPER.—The copper colloids do not possess the properties common to the copper salts. The first copper colloid, *cuprase*, was prepared by Gaube. It contains 15 mgs. (.231 grain) of metallic copper by liter (2.1133 pints). It is used principally in the treatment of cancer, and many authors have obtained favorable results in different forms of carcinoma. Clerici goes so far as to admit that *cuprase* gives positive results in 94 per cent of cases, and brilliant success in 20 per cent. Out of 53 cases of cancer Herschell obtained 14 cures (26 per cent), and 36 manifest improvements (67 per cent). Loeb's *colloidal copper* is a solution prepared according to the method of Bredig, and is used to combat diseases of the skin in daily intravenous injections of from 3 to 4 c. c. (48.6 to 64.8 minims). The results obtained are contradictory. *Electro-cuprol* is a colloidal copper oxid which contains 0.20 per 1000 of metallic copper. It produces the same results and effects as *cuprase*. It has been used in intramuscular injections of 5 c. c. (1.35 fluidrams) every other day, and in intravenous injections of from 1 to 2 c. c. (16 to 32.4 minims) up to 5 c. c. (1.35 fluidrams) to fight the fever in tuberculosis. In this disease it seems to improve the general condition and to act favorably upon the secondary infections.

TIN.—The salts of this metal hamper the growth of staphylococci *in vitro*. The most commonly used of all its colloids are *stannoxyl* and *tin collobiase*. It is used in the treatment of grip in intramuscular injections of 2 c. c. (32.4 minims). Results are very variable.

NICKEL.—The colloid of nickel, *nickelion*, seems to improve the secondary infections in tuberculosis.

MANGANESE.—Robin prepared a *chemical colloidal manganese* containing 30 mgs. (.462 grain) per 1000. Ten cubic centimeters (2.71 fluidrams) injected intramuscularly twice in case of pneumonia produces a marked improvement in the condition of the patient. Its properties are eminently antitoxic, which is proven by the fact that Robin was able to neutralize a toxic dose of morphin with 10 c. c. of this colloid. Other colloids of manganese are *electromanganal*, *manganese collobiase*, and Crooke's *chemical colloidal manganese*. The latter is recommended by MacDonagh as specific for the treatment of intoxications produced by mustard gas.

IRON.—The blood-building properties of iron have been known for a long time. As the chemical iron colloids cannot be injected, *electromartial* ought to be used. This has a very weak toxicity, but, on the other hand, it has a very strong action upon hematopoiesis. It stimulates metabolism and its elimination is very slow. It is fixed by the blood in the liver and the spleen, and only after high doses have been administered can its presence be detected in the urine. It has been used in chlorosis in secondary hemolytic icterus, in hemorrhagic pain, and anemia. In typhoid fever it has been used in a dosage of from 1 to 2 and 4 c. c. by vein. It is a good hemostyptic. Hypodermically it ought to be injected very slowly to avoid pain. In anemia it ought to be injected intramuscularly.

IODIN.—From all the colloids of iodine the most used is *iodeol*. It is an electric suspension of the metalloid in oil. It contains 20 cgs. (3.086 grains) per cubic centimeter. Although it presents almost all properties of the iodids, it is not as effective as they are. It is a strong antiseptic, and even *in vitro* it seems to attack the tubercle bacilli. It has been used in pulmonary infections, especially tuberculosis. From 1 or 2 c. c. are injected every day for two weeks. A week's rest is taken and then treatment is started again. This procedure has to be continued for months. *Iodeol* has also been used in other forms of tuberculosis, especially in throat and bone tuberculosis. *Iodargol* is a little stronger than *iodeol*, but has no manifest advantages.

SULPHUR.—Colloidal sulphur has been used in different forms of rheumatism with brilliant results. The *collobiase of sulphur* is the form most frequently used, and contains 0.33 per 1000 of sulphur. It is a chemical colloid. In acute joint rheumatism one-half cubic centimeter (8 minims) is injected daily or every other day. The dose is increased daily up to 2 c. c. Ten injections are sufficient to complete the cure. The action of sulphur collobiase upon certain forms of dermatoses is being studied. Other colloids of sulphur are: *collothiol*, *biosulphol*, *thionhydrol*, and *sulphoredol*. These colloids are used only by mouth or externally.

SELENIUM.—*Seleniol* or *selenium A*, and *electroselenium* have been used in the treatment of cancer. The results obtained have been very contradictory. Selenium is eliminated very slowly. Generally it is applied as after-treatment in case of excision of a tumor. It is injected intravenously, beginning at 1 c. c. and going up to 5 c. c.

The injections have to be continued, with periods of rest, even if there is a marked improvement.

ARSENIC.—This has been rarely used as a colloid. According to Lucien, *arsenion* is less toxic than *soluble arsenic*. It has been used in malaria and tuberculosis with encouraging results. Roux has used *arsenic collobiase* in the treatment of hemorrhagic icterus with good results. *Thiarsol* is a colloid containing arsenic and sulphur. Laveran has used it in trypanosomiasis, and Borrel says that it benefits cancer in the early stages. Fouard's *colloidal arsenic* is used in combination with a silver colloid in tuberculosis.

SILICIUM.—The only colloid of this is *silicion*; this was prepared by Lancien. It is a purple liquid containing 1.30 per 1000 of the element. It has been used in goiter.

QUININ.—This is the first organic substance which was used in colloidal form. The *basic quinin collobiase* contains 3 mgs. per cubic centimeter. In cases of malaria in which other treatments have failed it has given wonderful results. A complete cure can be obtained using a maximum of 5 cgs. (.7715 grain) of quinin. It produces a very strong reaction similar to a malarial access, but Rosenthal avoids it by giving the patient some drops of a 1 per 1000 adrenalin solution.

Authors differ very much in their opinions about the efficiency of the colloids. The method of action of these substances can be explained as follows: By their mere presence they exert diaphylactic action, but if the defenses which the organism possesses are not sufficient, the stimulation represented by the introduction of the colloids will be insufficient. Furthermore, we must bear in mind that the colloids are very powerful medicaments, and have to be used very carefully. The specific action of a colloid depends upon the substance which forms its base. Hence when choosing a colloid, we should prefer the one that possesses the metal or the metalloid exerting the strongest action upon the infective agents whose destruction we have in mind. It is probable that in the near future the colloids will supplant sera and vaccines in certain cases. Their usage is not yet perfected as to method, but there is no doubt that colloidal therapy will constitute a wonderful means of curing in the future.

C. F. ARROYO.

CAWSTON, F. G.: **Colloidal Drugs in the Treatment of Bilharzia Disease in Young People.** *Journal of Tropical Medicine and Hygiene*, 1920, xxiii, 180-182.

When tartar emetic is introduced into the veins of young people there are sometimes very severe reactions. Dr. Cawston has used collosol antimonium and oscol stibium. He has found that oscol stibium can be given by mouth up to a teaspoonful daily, without any ill effects, but that intramuscular injections are much more effective, and even intravenous injections of from 1 to 4 c. c. may be given with benefit. Both oscol stibium and collosol antimonium help to clear the urine and blacken the eggs and so can be recommended for children, as it improved the general health and made them better able to stand tartar emetic treatment later. Intravenous injections of tartar emetic are usually needed to complete the cure, but if the injections follow a course of treatment with oscol stibium or collosol antimonium, smaller doses will serve.

F. HULTON-FRANKEL.

MELAMET, S.: **Chemotherapy of Tuberculosis** (Chimiotherapie de la tuberculose). *Le Concours medical*, Jan. 4, 1920, xlii, No. 1, p. 21.

The author thinks that in view of the failure of obtaining constant successful results with the use of tuberculins, serums and vaccines in the treatment of tuberculosis, the biological remedies ought to be discarded and the solution of the problem of treating tuberculosis ought to be searched for in chemotherapy, which must aim to reach the following finalities:

(1) To attack the microörganism not only with the view of paralyzing its development but of disorganizing its structure.

(2) To modify the soil in which the tubercle bacilli grow in such a way that the infected subject is able to employ all his means of defence.

Melamet thinks that the underlying factor of tuberculosis is an insufficient physico-chemical activity of the organism. The oxidation process is impaired, thus the importance of favoring oxidation. To attain this he uses manganese. He thinks that no other metal possesses the oxidizing properties of manganese. Bertrand

affirms that almost all oxydases are compounds of manganese. Trillat showed that the oxidizing properties of the salts of manganese can be highly increased by the addition of an albuminous substance. Besides this, manganese according to the personal researches of the author, plays the important part in the human system of fixing all mineral salts, especially the salts of calcium. He first tried colloidal manganese and potassium permanganate in the treatment of tuberculosis, but the results were not encouraging. He decided to add calcium to the manganese, basing this procedure upon the hypothesis suggested by Overton that calcium exerts a lipolytic action upon the ciro-adipose capsule which surrounds the tubercle bacillus. Besides he associated to both metals some potassium, based upon the view that the potassium salts exert a beneficial influence upon the vascular system of tubercular patients, lowering the pulse-rate and the hypertension.

He uses a calcico-potassic manganate in very dilute solution (he fails to report the real concentration) injected intravenously: He injects every other day 5 c. c. of the solution until 15 injections have been given. The patient rests for twenty days, and he repeats the treatment with another series of 15 injections. Again a period of rest of twenty days follows and a last series of injections (10) is given. In the severe cases he makes daily injections during the first ten days.

He has also tried the rectal way. The technic devised follows: 5 c. c. of the manganate are diluted in two-thirds of a glass of water, which has been boiled. The entire amount is put in an irrigator and injected rectally according to the drip method. It is good practice to give an enema before the instillation is started.

The author has observed a marked improvement of all cases of pulmonary tuberculosis treated according to this method. In six or eight weeks the râles disappear and the sputa becomes negative or, when positive, the high degree of disintegration of the bacilli can easily be seen. The auscultatory findings were confirmed by radioscopy. The manganate acts also upon the saprophytes, especially upon the streptococcus. The most resistant of all the saprophytes are the staphylococci. Manganese can be detected in the expectoration of all patients. In the blood the initial lymphocytosis changes to polynucleosis, and later leukocytal balance is reëstablished.

C. F. ARROYO.

OPIE, E. L.: **First Infection with Tuberculosis by Way of the Intestinal Tract.** *American Review of Tuberculosis*, Nov., 1920, iv, No. 9, p. 641.

Few instances of healed tuberculosis of the mesenteric lymph-nodes are found among children or adults examined in the city of St. Louis. In a series of 93 autopsies made in 1917 upon children and 50 autopsies on adults no instance of healed mesenteric tuberculosis was found.

Caseous or calcified mesenteric nodules were found in 18 instances among 66 young male adults whose age with few exceptions varied from twenty to thirty years. In a number of instances *x-ray* plates were made from both the mesentery and the lungs and they serve to show with considerable accuracy the size and position of the calcified lesions which were present. Since the lesions under consideration have their origin in childhood, they rarely exhibit fresh caseation. In one instance there was active caseous tuberculosis of a mesenteric lymph-node. Beginning calcification was not evident when the node was sectioned, but an *x-ray* plate of freshly removed mesentery showed a characteristic shadow of calcification which occupied a narrow zone at the edge of the caseous area. In thirteen instances the mesenteric lymph-nodes contained completely healed, firmly calcified tuberculous lesions. Apical tuberculosis which usually pursues a chronic course, and in most persons undergoes complete healing, has been found in the lungs of 22 per cent of adults above the age of eighteen years included in the former study. In two of eighteen instances of partially or completely calcified tuberculosis of the mesenteric lymph-nodes there has been apical tuberculosis of the lungs, which, unlike the primary focal lesions of the lungs is unaccompanied by evidence of tuberculosis of the adjacent lymph-nodes at the hilum of the lung. A study of tuberculosis in adults who, with one exception, have died with conditions wholly unrelated to tuberculosis has shown that evidence of tuberculosis by first infection may be found in the mesenteric lymph-nodes of 1 of every 4 young British adults, whereas similar lesions are relatively uncommon in this country. Greater frequency of tuberculosis among cattle in Great Britain suggests itself as an explanation. It is noteworthy that in those in whom these mesenteric lesions occur, focal tuberculosis is scant or absent. The evidence available indicates that first

infection with tuberculosis does not uniformly prevent a second infection, but modifies its course so that it tends to become chronic and exhibits little tendency to become disseminated. Lesions of the intestine corresponding to those of the mesenteric lymph-nodes doubtless tend to disappear; for caseous material within an intestinal ulcer is rapidly disintegrated and removed. Infection may occur by way of the lungs or by way of the gastro-intestinal tract, and the occurrence of one lesion tends to prevent the other.

C. SCHMID.

OPIE, E. L., AND ANDERSON, H.: **First Infection with Tuberculosis by Way of the Lungs.** Abstracts of the *American Review of Tuberculosis*, Nov., 1920, iv, No. 9, p. 679.

The lesions which occur in the lungs of almost all individuals, who die from conditions other than tuberculosis have the character of the tuberculosis of childhood, that is, they occur as foci in the substance of the lung and are not more frequent in the apices than elsewhere. They are accompanied by more extensive lesions in the adjacent lymphatic nodes. The occurrence of these focal lesions which are almost constantly found, does not exclude the more familiar type, the apical lesion. In association with the apical lesions, which occur in the later period of childhood and in adult life, there is no caseation nor calcification of the regional lymph-nodes. The early focal lesion has the character of a first infection and implicates the lymphatic nodes, whereas the apical lesion has the character of a secondary infection and causes no caseation of adjacent lymph-nodes. Apical lesions increase with increasing age. They are rare before ten years; from ten to eighteen years the incidence was 11 per cent; between eighteen and fifty years of age in those dying with conditions other than tuberculosis the incidence was approximately 14 per cent; after the age of fifty, incidence of apical lesions was much increased; they were present in more than one-third of those who died from all causes.

Accurate interpretation of the pathology is dependent upon a recognition of the distinction between focal tuberculosis which usually has its origin in childhood, and apical tuberculosis which appears in the later period of childhood and adult life.

With few exceptions the x-ray plate made from the lung of an adult demonstrates the presence of conspicuous calcified nodules in the lung and in adjacent lymph-nodes, whereas in approximately half of all adults the healed pulmonary nodules, which are usually multiple, are from 0.5 to 1 cm. in diameter, and the more numerous nodules of lymph-nodes are from 1 to 2 cm. across. In more than 1 in every 10 individuals, the calcified lesions present in the lung, show at autopsy that the individual has suffered with widely disseminated tuberculosis of the lung, and massive tuberculosis of the adjacent lymph-nodes. Evidence of extension of the tuberculous infection to distant organs is not uncommon and healed tubercles in the spleen and liver, usually in both, have been found in ten of fourteen instances of extensively healed tuberculosis of the lungs. Tuberculous meningitis has been followed by recovery, with calcification of those meningeal tubercles which have undergone caseation.

C. SCHMID.

BARKER, L. F.: **Group Diagnosis and Group Therapy** *Illinois Medical Journal*, 1921, xxxix, No. 1, p. 1.

The author has in mind a group of physicians who are organized "for the conduct of a general, diagnostic survey of the patients as a whole and for the prescription and execution of comprehensive therapeutic regimens based upon them."

Organization of clinical work and technic in diagnosis are the aims in this coöperation of groups of physicians. After the taking of anamnesis from various viewpoints by doctors who have made different parts of the human organism their specialty, a comparison will lead to a clearer recognition of a disease than when a home physician calls in or consults with one or two other men who may be good specialists, but not always able to keep up with new technic or to have available all apparatus for diagnostic purposes. "Purely individual medicine is no longer practicable and no one at present strictly adheres to it". Physicians have laboratory tests and roentgenograms made for them by others, consult with other physicians, etc.

In rural districts group practice may at present not yet be feasible. In many minor ailments it will be necessary to dispense with it and in primary surgical urgency it must be postponed "or temporarily, rigidly restricted."

Prophylaxis is being more and more sought. Many people see the wisdom of being periodically overhauled, and are willing to regulate their lives hygienically. This is one of the benefits of group practice. Diseases which are curable are detected in time and are discovered when a patient submits to examination for another complaint, and when he is sent through a specified case-history taking by several members of a diagnostic group.

In most cases the period required for a general diagnostic survey by a well-organized group will be from two to three days. This fact has been appreciated by many patients and greatly facilitates work, which will, of course, in many instances require a week or more. The diagnosis is apt never to be arrived at in the old manner of going only reluctantly and after long experimentation to other specialists or physicians.

The cost will in many cases be lessened by the saving of long experiments in therapeutics.

Group practice is also a means in the suppression of charlatans.

The organization may collect as a group under one roof, its members being legally closely related, as partners or as employers and employees, or the organization may comprise a group of physicians scattered in a city, but working together in coöperation.

PRITCHARD, J. S., AND MORTENSEN, M. A.: **Pulmonary Findings Due to Circulatory Changes.** *The American Review of Tuberculosis*, Oct., 1920, iv, No. 8, p. 620.

The authors conclude that all pulmonary signs and symptoms call for a careful study of the etiological factors. The physical signs in the lung should not be the only basis in making a diagnosis. Often myocardial degenerations and embarrassments of different types produce pulmonary signs and symptoms, which are often misinterpreted. In many cases of bronchitis where doubt exists, the use of digitalis results in a diminution of the symptoms and physical signs, thereby making this drug a valuable agent in diagnosis as well as in therapeutics. Râles due to circulatory causes are not always found in the bases and may be found in other parts, even one or both apices.

C. A. SCHMID.

HANZLIK, P. J., AND WEIDENTHAL, C. M.: The Plasma and Blood-clotting Efficiency of Thromboplastic Agents *in Vitro* and Their Stability. *The Journal of Pharmacology and Experimental Therapeutics*, Oct., 1919, xiv, No. 2, pp. 157-188.

Experiments were performed to compare the thromboplastic activity of several different products: the activity of fresh and old preparations, and the relation of concentration to their activity *in vitro*. The thromboplastic agents tested were secured from various sources on the market, from the manufacturers direct, and two preparations of kephalin were made in the laboratory. The agents for convenience were classified into three groups: (1) Thromboplastins—saline extracts, usually of the brain; (2) kephalin—a lipin, an ether extract of the brain; (3) serum products, to which class belongs the various commercial products as, coagulen, hemostatic serum and coagulose.

Kephalin and thromboplastin type or thromboplastic agents definitely and markedly accelerate the coagulation time of blood and oxalate plasma, while coagulen, hemostatic serum and coagulose are practically inactive. In descending order of thromboplastic activity with peptone plasma, the agents tested arranged themselves as follows: Thromboplastins, kephalin, coagulen and hemostatic serum (inactive). Freshly obtained or prepared thromboplastic agents tested, arranged themselves in descending order of plasma and blood-clotting efficiency *in vitro*, as follows: Thromboplastin (Squibb), thromboplastin (Armour), kephalins, fresh and old (Armour), coagulen (Ciba), coagulose and hemostatic serum (Parke-Davis), and normal saline. The thromboplastins possessed from three to seven times the accelerator clotting efficiency of kephalin and shortened the coagulation from one-twentieth to one-tenth as compared with normal saline. The kephalins 0.1 per cent possess about one-seventh to one-third the activity of thromboplastins, but as compared with saline shorten the coagulation time one-third to one-half. Fresh coagulose, hemostatic serum and coagulen did not accelerate clotting.

Both the kephalins and thromboplastins lose their thromboplastic activity on standing. This is more variable with kephalin since some specimens, nine to twenty-two months old were as active as the freshest while other specimens of the same age were much less so. Fresh or old coagulen, dry or in solution, fresh hemostatic serum and

fresh coagulose possess no demonstrable thromboplastic activity *in vitro*. The range of optimal concentrations of kephalin for hastening coagulation time is approximately from 0.06 per cent to 1 per cent, outside of which limits the coagulation is retarded. Coagulation activity of the thromboplastins is directly proportional to the concentration, showing difference in action from kephalin.

H. M. FEINBLATT.

SPEED, K.: Carcinoma of the Pancreas. *The American Journal of the Medical Sciences*, July, 1920, clx, Part 1, No. 580, p. 1.

Fifty-two cases of primary pancreatic cancer are tabulated. The average at diagnosis was 57 years; maximum age 76, minimum 36 years; 35 males to 16 females. The onset of symptoms varied from a few days to three weeks. The symptoms in order of importance are cachexia, jaundice, abdominal pain, tumor, ascites, and constipation. Cachexia was present in 90 per cent of patients. Loss of weight was rapid. Jaundice was of a deep color and present in 80 per cent. Pain was either cardialgic or gastralgic in character, occurring in 61 per cent. This is colicky and appears just preceding the onset of the jaundice; in a few weeks it becomes duller and gnawing, is constant and referred to the back. Abdominal tumor either in the liver or mid epigastric region was present in 55 per cent of patients. Most frequently the mass is the liver or the over-distended gall-bladder. The pancreatic mass does not descend on inspiration. Ascites and hemorrhage appeared in about 20 per cent. The bleeding occurred from the mouth in 2 cases; from the nose in 4; from the buttocks and skin in 2; from the stomach in 2; from the bowel in 1. Three patients did not show petechia. Constipation was present in 38 per cent. Edema of the lower extremities was present in about 6 per cent. The x-ray did not help in the diagnosis of more than 4 per cent of the cases. The urine showed sugar in 6 per cent. Bile was found in all jaundiced patients. Feces examination showed blood in 30 per cent, an excess of fat in 15 per cent, and much undigested material. Steatorrhea and azotorrhea were inconstant and unreliable findings. Eleven cases went to autopsy. The head of the pancreas was most often involved, the body next, the tail least often. No calculus was found.

If the carcinoma is confined to the tail it does not involve the common duct and the symptoms will be late. Glycosuria is infrequent because those islands of Langerhans not involved in the carcinomatous process take on extra duty and maintain carbohydrate equilibrium. Accessory pancreas has also been found to carry on carbohydrate digestion.

A. T. MAYS.

SAHLI: Generation of Antibodies (Ueber das Wesen und die Entstehung der Antikörper.) *Schweizerische medizinische Wochenschrift*, 1920, 1, Nos. 50-51.

Sahli refutes Ehrlich's theory of antibodies which says that antibodies are nothing more than side-chains of the protoplasm which have been extracted from the cell in its functioning by the action of its antigens, of which there has been an over-production, and which have been evacuated into the blood. They are vigorously specific to the antigens.

The author says, protoplasm is not a chemical, but a morphologic organism. Chemical side-chains do not regenerate and regenerating morphological organisms form no side-chains.

He pleads primary presence of antibodies in the blood and body-fluids, and states that these normal bodies are increased in case of immunization emergency. Horses, for instance, which are naturally immune to diphtheria, tetanus, and staphylococcus, and patients, who have never had diphtheria, harbor in their blood diphtheria antitoxin.

The quality of a substance to act as an antigen must be a primary quality of the organism, which receives the antigen. The body must be primarily blended to every substance acting on it as an antigen, in so far as it contains in its fluid small quantities of those substances which are later proliferated as antibodies.

His opinion is that the cells, which provide antibodies are not directly affected by the antigen, but that the cells, which produce antibodies are involved only so far as they react in a physiological manner on the changes of the blood and body-fluids by secretion, when a lowering of concentration of the substances, serving as antibodies, occurs. It may be, that these substances, cannot, in many

instances, be traced in a normal state, their quantity being too small.

These proliferable antibodies, which are naturally present, play some unknown physiological part during the course of life, and are as little known as many other parts of the blood-content. They start to act only when they are met by antigen answering their individual qualities.

The number of these preformed antibodies is practically interminable, answering the great manifoldness of colloids, and all may eventually find a partner with which they may enter into connection. Both antigen and antibody may be simple or complex.

The immunizatory proliferation of these substances occurs, in accordance with the general economic laws of the organism of secretory compensation and over compensation.

This theory is in direct opposition to Ehrlich's and Landsteiner's which claim a direct influence of the antigens on the cells.

The formation of antibodies is nothing but a physiological blood-regeneration, and surplus of regeneration. The author uses the term secretion in connection with blood, and does not think that the customary acceptance of the blood as a tissue into which certain parts enter from without, can be maintained.

In fact all parts of the blood come from without the circulatory channels, that is, in a way they are, *in toto*, secretions. As does the entire contents, so do the antibodies come from without as normal constituents of the blood.

This is only a skeleton of the very minute study carried on in this article.

WOLBARST, A. L.: Wasserman Contradictions Considered from the Clinician's Point of View. *New York Medical Journal*, Jan. 31, 1920, cxi, 177.

According to Wolbarst it is necessary that the Wassermann test and complement-fixation test for gonorrhea should be made in every case by at least three serologists working independently; the serum for all the tests should be taken simultaneously and sent to the three laboratories under identical conditions. Three serologists will agree in about 53 per cent of Wassermann tests and in about 42 per cent of gonorrhea, complement-fixation tests. That is, the chances are

about 53 in a 100 that three different serologists will agree on any one given serum. Strangely enough they are more apt to agree in the negative than in the positive cases. This being the case, the author says "it is well to devote more study to the clinical features of our cases and trust not quite so implicitly on our laboratory workers for our diagnosis."

M. KESCHNER.

BEINHAUER, L. G.: **Effect of Therapeutic Doses of Mercury on the Kidneys and the Duration of Its Excretion.** *The American Journal of the Medical Sciences*, June, 1920, clx, Part 6, No. 579, p. 897.

In the experiment, calomel, in one quarter grain (.0162 gram) divided doses, at fifteen-minute intervals, was given to patients whose urine was previously normal. Its excretion begins within from six to twelve hours and is continued until the sixth day, this depending upon the size of the dose. No saline or purge was administered. A small dose is excreted as rapidly as a large one, but over a shorter period of time. The specimens did not at any time show injurious effect upon the kidneys.

A. T. MAYS.

RAMIREZ, M.: **Protein Sensitization in Eczema.** *Archives of Dermatology and Syphilology*, 1920, ii, 365.

Ramirez reports that of 78 cases of eczema tested with proteins, 30 gave positive skin tests. They were tested with 19 different proteins; 14 reacted to egg white, 4 to cow's milk, 7 to corn, 8 to celery; 27 showed multiple sensitization; only 3 reacted to but one protein.

Skin scarification was employed and the results called positive only when a definite wheal measuring 0.5 cm. in diameter appeared.

Treatment consisted in the removal from the diet of proteins giving a positive reaction. The results were:

Cured	10
Improved	12
Not improved	8
Total	30

In the "cured" and "improved" cases the change was noticed within a week. In the "cured" there have been no recurrences within intervals of from six months to one year. These are taking small quantities of food to which they were sensitized. Skin tests made on them six months after the "cure" were negative.

UTHEIM, K.: **Agglutination in Influenza.** *The Journal of Infectious Diseases*, Nov., 1920, xxvii, No. 5, p. 460.

Agglutination tests were made upon the serum from patients with influenza in the St. Louis Children's Hospital in order to determine: (1) whether the serum of the patient agglutinates the influenza bacillus obtained from the same patient; and (2) whether agglutination takes place with heterologous strains. Thirty strains were isolated. Of these 11 (36 per cent) gave a positive agglutination with their own bacilli; 6 in a dilution of 1:160, 4 in 1:80, and 1 in 1:20. Seven of these occurred in uncomplicated influenza, and 4 in influenzal pneumonia. Of the 30 strains only 1 was agglutinated by heterologous serum.

M. M. BANOWITCH.

KOONS, H. H.: **Some Observations on the Use of Vaccines and Glucose in the Treatment of Influenza and Bronchopneumonia.** *The Military Surgeon*, April, 1920, xlv, No. 4, pp. 403-409.

In a series of 50 cases of pneumonia treated with vaccines, 2 died during the acute stage and one following mastoid operation. There was not a single case of empyema. These patients were treated in warmed, well-ventilated wards, carefully protected from chilling by draughts or unnecessary examinations. Probably no fad in medicine has accounted for more deaths than open-air treatment of pneumonia.

The author asserts that as a remedial agent, vaccine, if given at the onset, will materially shorten and lessen the severity of the attack and pneumonia will be a rare occurrence. Vaccine given to a pneumonia patient will ameliorate the severity of the symptoms, hasten crisis, and cut the number of serious sequelæ to a minimum.

A prophylactic dose of vaccine will confer immunity for from six to eight weeks.

Glucose, intravenously, combats acidosis, gives nourishment to the heart muscle, adds fluid to the body, and has a decided diuretic action.

GOLDWAIT, J. E.: **The Variations in the Anatomic Structure of the Lumbar Spine.** *Journal Orthopedic Surgery*, July, 1920, ii, No. 7 (Old ser., xviii, No. 7), pp. 416-434.

This communication is made for the purpose of emphasizing the variations in the structure of the lumbar spine, and the importance of the study of this region with reference to such variations, for the explanation of the symptoms of many of the cases of backache or leg pains. Many patients suffering from pain in the low back, not due to disease conditions, refer the pain commonly to two regions: one being the very low back covering the lumbosacral and the sacro-iliac joints, and the other being the dorsolumbar juncture over the areas that would be represented by the end of the transverse processes of the first lumbar.

The peculiarities in structure and mechanics in the lumbosacral region have been discussed more or less of late although very little attention has been given to the conditions as they exist at the dorsolumbar region. In this latter region the pain is often a dull and heavy ache, but at times is exceedingly acute, with the body listed to one side and held very rigidly by muscular spasm. From the location of the pain it is often supposed to be due to some disturbance of the kidney, but is commonly relieved, at times instantaneously, by manipulation that would relieve pressure of the last rib against the tip of the transverse process of the first lumbar vertebra. At times the rib apparently is caught behind this process with intense pain, due to the direct pressure of the intercostal nerve or to the irritation of the ganglia which lie in front of these ribs. The fact the rib can get into a position behind the transverse process of the vertebra below is easily understood, if the position which the long ribs assume is considered in the relaxed posture so commonly seen in men and women, a part of which is the increase of the lumbar spinal curve with the backward inclination of the dorsal spine.

In this position the ribs are in a place well posterior to the transverse processes of the first lumbar vertebra and the catching of one upon the other becomes a question only of special shape, or special movement. The relief of pain by raising the ribs, with the correction of the posture, or, in the acute cases, by bending the patient away from the side upon which the pain is, leads to little question as to the nature of the difficulty.

The study of the anatomic structure of this dorsolumbar region shows that there is quite as much variation in the shape and position of the bones of this region as has come to be recognized as existing in the low lumbar region.

To understand and relieve the symptoms presented by a patient it must be remembered that every portion of the structure of this part of the skeleton varies at times. The shape of the body of vertebra varies, not only from the so-called normal, but may show several different types in a single individual spine. The spinous processes vary in length, thickness and inclination, as is true of the transverse processes. The articular processes vary in shape, being flat, with lateral plane or crescentic, and in the latter the chief plane of the articular surface may be antero-posterior on a vertical plane or oblique. Such differences not only occur, but differences may exist upon the two sides or at different levels in one individual.

In interpreting the symptoms in a given case all of these things must be taken into account. The heavy spinous processes will naturally limit backward bending. The crescentic articulation will naturally limit side bending more than the flat articulation. The heavy transverse processes upon the last lumbar naturally come in contact with the sacrum more easily than the small so-called normal process. The excessively broad transverse process with the articulation with the top of the sacrum, not only introduces another joint which may become diseased, but a joint which, because of the unnatural mechanics involved, is particularly apt to be strained. The narrow lumbar vertebrae naturally tend to flexibility of the spine; the broad and thin vertebrae naturally tend to stability and inflexibility of the spine.

With a careful anatomical analysis of a case, with the appreciation of the possible mechanics, most cases become understandable and relief will be fairly easy to secure.

McLAUGHLIN, A. J.: **Standardization of Municipal Health Organization.** *Public Health Reports*, 1920, xxxv, 1035.

McLaughlin considers that a health department requires these fundamental parts:

Administration	Public Health Education
Vital Statistics	Sanitary Engineering
Child Hygiene	Food Inspection
Industrial Hygiene	Hospital and Sick Relief
Communicable Diseases	

He says that the list is not complete or accurate for all cities, that some will have a tremendous industrial problem, others little or no need for industrial hygiene. The larger cities will require special divisions for at least tuberculosis and venereal diseases. The requirements for medical, sanitary and food inspection will vary. He thinks that, except for fundamentals, standardization should not be attempted but that individual studies of each city should be made, and recommendations for health work made on the basis of its needs and possibilities.

LOEPER, FAROY, AND TONNET: **The Proteolytic Ferment of the Tumors and the Blood of Patients Suffering with Cancer** (Le Ferment Proteolytique des Tumeurs et du Sang des Cancereux). *Proceedings, Société de Biologie de Paris*, July 3, 1920; reported in *La Presse médicale*, July 7, 1920, xxviii, No. 46, p. 457.

The authors measured the activity of the ferment by the action of an extract of the malignant tumor or of the blood serum on a carefully titrated solution of peptone.

Like crepsin, to which it is closely related, the proteolytic ferment studied transforms the peptones into amino acids. The transformation of the peptones is much more marked when the extract used is from a tumor of the digestive tract, than when a tumor of the breast is used. The proteolytic activity of the serum of patients afflicted with cancer is more than twice as marked as is the activity of normal serum on the peptone solution.

S. KAHN.

EDITORIAL: **The Treatment of Cancer.** *Canadian Practitioner and Review*, Aug., 1920, xlv, pp. 278-279.

In this editorial credit is given to Dr. Thomas J. Glover, of Toronto, for the work he has been doing, but the editor feels that it is most unfortunate both for science and the suffering patients that his (Glover's) methods have come into the limelight in such an objectionable way. A serum, said to be discovered by him, is now being used in St. Michael's Hospital. As to the results, it is yet impossible to speak definitely, and yet the newspapers are full of the most objectionable items published in wholesale style. From the standpoint of the patients alone, this is unadvisable, if not absolutely cruel. These are some of the headlines in Toronto papers: "Cancer patients markedly better"; "All are improved"; "Lessening of pain and general improvement is the report". But we can't help this publicity, says some. How do they avoid it in other research centers where similar work is done on a much larger scale with no publicity? The editor has no desire to be personal, but it would seem fair to Dr. Glover to say a word or two. He has been an honest and conscientious worker for a long time, commencing ten years ago in New York, where he had good laboratory opportunities for research with experimentation. After these years of labor he meant to use a serum and he wished to do it quietly, but it soon became public property. How? It would appear that every reporter seeking information (legitimately; so far as is known) met some one at the hospital who told him "facts" as to the improvement in condition of the patients before it was possible to get actual knowledge. One house surgeon at St. Michael's appeared to spend a large part of his time telling things that he didn't know and could not possibly know, although he may have been sincere and honest in his foolish talk. The editor wishes to indicate that this is simply an expression of his own personal opinion.

HALL, O. B.: **Visceral Ptosis.** *The Southwest Journal of Medicine and Surgery*, 1920, xxviii, 95.

Visceral ptosis includes ptosis of the stomach, liver, spleen, pancreas, intestines, often the organs of the pelvis, and sometimes the

kidneys. Ptosis of any one or of all of the visceral organs is possible. More harmful results often follow the ptosis of a single organ than complete ptosis, because the balance between the organs is thus disturbed.

Diagnosis.—With the exception of the kidneys, pancreas, and small intestine it is easy to establish a diagnosis of ptosis of abdominal organs by palpation or percussion. Ptosis of pelvic organs may be diagnosed by the bimanual method. The best method to secure a positive diagnosis is by means of the x-ray and the bismuth meal.

Symptoms.—Dull, heavy headache with soreness on the top of the head, due to derangement of the bowels or uterus; backache, constipation or diarrhea, loss of appetite, "with either hypochloridia or hyperchloridia"; bearing down sensation in abdomen and pelvis, with tenderness; aching of legs and feet; general malaise.

Causes.—Traumatism, heavy lifting, being on the feet too long during heavy exercise or work, childbearing.

Prevention.—The prevention of such changes (especially during pregnancy) is secured by the wearing of suitable supports, activity which increases muscular control but does not produce overfatigue, i. e., walking is advised, riding and heavy lifting are discouraged.

Treatment.—Use of abdominal supports, complete evacuation of the bowels, drinking of large quantities of water, light diet, rest in bed for from sixty to ninety days, if possible. By following this treatment, detrimental symptoms are avoided and comparatively good health secured.

KING, E. L.: **Non-interference in the Treatment of Puerperal and Postabortal Infections.** *Journal of the American Medical Association*, July 17, 1920, lxxv, 147.

Of 60 cases of severe infection following abortion or full term labor, 23 presented local pathologic conditions of the pelvis, representing all degrees of pelvic peritonitis. Of these 23, 6 were operated. In 4 cases the operation consisted of drainage of pus pockets which developed late and were opened weeks after admission. Two of these were abscesses of the uterine wall which were drained by laparotomy; two were broad ligament abscesses which were opened by incision above Poupart's ligament. These 4 recovered. Con-

cerning the other 2, not so sharply indicated, there were errors of judgment. For a suspected pus pocket, a posterior colpotomy was done on the twenty-ninth day. No pus was found, but the patient died two days later with symptoms of general peritonitis. The sixth patient was operated eleven weeks after normal full-term delivery. Her temperature had been normal three weeks and all of the exudate had disappeared except a small tubo-ovarian mass. Thinking that if pus were present it was sterile, the mass was removed (pus tube and abscessed ovary). She died in forty-eight hours of general peritonitis. Doctor King believes that these two would have recovered if left unoperated.

Asked if he employed the same treatment in cases of pelvic abscess, Doctor King replied that these foci were drained as soon as a localized collection of pus was certainly demonstrated. He advocates non-interference in all cases of puerperal infection generalized in the blood stream or localized in the pelvis, the sole exception being the drainage of accessible pus collections as soon as they develop.

In the discussion which followed, Dr. Polak of Brooklyn said that his experience of several thousand cases supported Dr. King's conclusions. He believed that the Fowler position helped to convert a general peritonitis into a local one.

RIVAS, D.: **Human Parasitology.** 1920, pp. 390-392.

Strongyloides intestinalis was first seen by Normand in 1876 in the feces of man. Only the female has been found in the small intestine of man. It is very small, measuring 2.2 mm. in length by 34 microns in width. The eggs may be seen within the worm. They are few in number (8 to 12), elliptical in shape, and measure 50 to 58 microns by 30 to 34 microns. As found in the feces, the eggs are arranged in a chain surrounded by a common transparent sheath or glandular culdesac. They are greenish in color and contain a completely formed embryo. They occur in the feces, especially during attacks of diarrhea. The parasite is found in the duodenum and jejunum, embedded in the mucosa of the intestine. The *strongyloides* larva, like *Ankylostoma*, may enter the host through either the skin or the mouth, and on reaching the intestine will burrow into the

Lieberkühn follicles, and grow to adult size when the cycle is repeated. The parasite has been regarded as non-pathogenic, but it is believed that in some instances it gives rise to a catarrhal condition of the small intestine (Cochin-China diarrhea). As the parasitized person may not present any symptoms, the diagnosis is commonly dependent upon finding the eggs or the larva in the feces. The feces should be examined during an attack of diarrhea or after a purgative.

Medicinal treatment is usually without effect, as the parasite is hard to dislodge from the intestinal mucosa. Prophylactic measures, mainly hygienic, such as are used for *Ankylostoma*, are generally employed to best advantage.

BALEN, M. J.: **Addison's Disease.** *Journal of the American Medical Association*, Jan. 10, 1920, lxxiv, 82.

The author reports the case of a man, aged forty-eight, who was admitted to the hospital complaining of "liver trouble" and extreme and progressive weakness. He had had mumps and whooping cough in childhood; his past medical history was otherwise unimportant. He had been in fairly good health until about six months before, when he began to experience constant muscular fatigue, independent of exertion, and to be subject to spells of faintness, dull headaches and pain in his shoulders. His appetite of late had been poor, his bowels constipated.

For the past six months he had been growing progressively weaker and on admission his weakness was extreme. Coincidentally with the beginning of his weakness, his skin became brownish. The pigmentation was gradual in appearance and steadily progressed in intensity. There was no history of venereal infection or of any accidents or operations. Twenty-four hours after admission the patient became pulseless, went into coma and died suddenly.

The history of a condition with an obscure and insidious onset, with profound and progressive asthenia, general debility, feeble heart action and circulation, low blood-pressure, nervous and mental depression, digestive disturbance and a brownish pigmentation of the skin calls to mind the characteristic syndrome of Addison's disease. The findings at necropsy, namely, tuberculosis of the lungs

and of the suprarenals, together with enlargement of the spleen completes the clinical picture of this rare disease.

The very low blood-pressure was probably due to an alteration, insufficiency or total suppression of the internal secretion of the suprarenal bodies in consequence of their destruction by tuberculosis. The sudden death precluded any attempts at suprarenal treatment. It is doubtful if such therapy could materially influence the course of the disease in a person whose system had been irreparably damaged by grave and extensive lesions of tuberculosis. The strange feature in this case was the absence of a history and symptoms of pulmonary tuberculosis.

WEST, H. F., AND PRATT, J. H.: **Clinical Experience with a Standardized Dried Aqueous Extract of Digitalis.** *Journal of the American Medical Association*, July 10, 1920, lxxv, No. 2, p. 77.

These observers prepared digitalis by filtering and drying immediately over a water bath at a temperature not exceeding 80° C. (176° F.) a freshly made 1 per cent infusion. The residue is a fine brown powder that is easily handled. It is very deliquescent and required care to be kept dry. After determination of its physiological potency it is mixed with anhydrous sodium sulphate in amounts varying with the potency of the drug, but never more than equal parts. It was found that this facilitated both keeping and handling and had no untoward effects. "It is then made up to weight, if necessary, with lactose so that 1 gram (15.43 grains) of the final product represents 1 gram of a leaf of pharmacopeial strength, that is, 0.6 mg. per gram of body weight is just sufficient to cause systolic standstill of the heart in sixty minutes." Capsules of 0.1 gram (1.543 grain) each are most convenient, both to preserve dryness and to cover the bitter taste. Tests at the end of a year showed that the specimens which had been kept dry retained their standard strength. Moisture has caused marked deterioration in three months.

Clinical tests were made on 55 patients whose conditions represented a full variety of indications for digitalis medication, with results that were "uniformly satisfactory". Whenever the patient's condition warranted it, digitalis was withheld until rest, diet and

other therapeutic measures had been tried and all likelihood of attributing undeserved credit to digitalis avoided. Massive initial doses were given when it was clear that no digitalis had been taken for at least three weeks. Thirty mgs. (.4620 grain) per kilo of body weight was found to be a fair average, except where small repeated doses were employed. In those cases a larger amount was tolerated. Tested upon cuts and converted to the Eggleston standard of cut units per pound it was found that the 30 mgs. average gave a unit value of 0.145, Eggleston's unit value being 0.146, an unusual agreement of figures by different observers.

Among clinical observations the authors note a frequent early diuresis, sometimes as early as six hours after the initial dose. Pulse deficits promptly disappeared, nausea and vomiting were noted in about the usual proportion of cases, relief of insomnia, lessened dyspnea, and the other clinical manifestations of digitalization were noted and recorded.

Following Peabody and McClure, emphasis is laid on the usefulness of the "vital capacity" of the lungs in estimating the effects of digitalis: a lowered capacity has not infrequently heralded cardiac failure and an increasing capacity usually accompanies favorable effects of the drug. In administering large doses, it is recommended that 0.4 gram less than the calculated maximum should be given, to avoid nausea. The remainder may be given after twenty-four hours; or 0.2 gram may be given at six-hour intervals as long as required.

H. G. WEBSTER.

FLOERSHEIM, S.: **Gastric Disturbances in Appendicular Inflammation.**
New York Medical Journal, May 15, 1920, cxi, 849.

Floersheim comments on the lack of appreciation by the general profession of the fact that a diseased appendix can cause more or less disturbances of the gastric functions. These disturbances seem to be produced reflexly through the nervous mechanism. This has a tendency to influence the mortality of the stomach, its secretion and other physiological functions.

In some cases there may be hypersecretion with or without increased motility, while in others there may be more or less marked

atony. There may be found various degrees of hyposecretion with different degrees of motility. The author has observed a practically normal secretory function with disturbed motility ranging from so-called convulsive spasms of the stomach and peristaltic unrest to an almost complete loss of motility. In some cases the fluoroscope showed active retroperistalsis. The latter, he thinks, may in a certain number of cases account for the persistent nausea in these cases. Deficient mucus secretion is common; at other times the mucus may be so thick and viscid as to lead to the diagnosis of mucus gastritis.

Many patients with appendicitis suffer from pain which may range from slight discomfort in the region of the stomach to severe pain not unlike that met with in gastric ulcer. A number of cases of gastric hemorrhage have been reported, especially in cases of the more severe and septic types of appendicitis. This has occurred with no pathological changes in the stomach, and according to Floersheim, is significant of a grave prognosis. The appetite may vary from a complete loss of it to an apparent bulimia. The stomach may appear normal in size, shape and contour; it may be dilated, simulating phantom tumors or it may appear as a diminutive or infantile stomach. In some cases the fluoroscope demonstrated an hour-glass contraction. The muscular rhythm of the stomach may be so disturbed as to simulate cancer or ulcer. These gastric symptoms are more common in the subacute and chronic forms of appendicitis.

Floersheim emphasizes the fact that whenever symptoms ascribed to gastric disturbances are not relieved by active rationally therapeutic measures directed to the stomach within a reasonable time, among other etiological factors of the gastric disturbance, some form of appendicitis or pathological condition in the right iliac fossa must be excluded before a final diagnosis can safely be established.

M. KESCHNER.

GRAY, G. A.: **A Death Due to Nitric Acid Poisoning.** *U. S. Naval Medical Bulletin*, Jan., 1921, xv, No. 1, p. 133.

A young fireman swallowed a corrosive poison, dying twelve hours later. Vomiting, bicarbonate of sodium and white of eggs were tried.

Swallowing became more and more impossible and he was given morphin.

Autopsy showed a blotchy cyanotic skin; the tongue and the buccal mucus membrane were bleached white. From the esophagus an olive-green cast of parchment consistency could be removed. The entire mucus membrane of the stomach was destroyed. The cardiac pouch had been converted into a ragged hole 2 2-3 inches in diameter. The kidney was congested and small hemorrhages were scattered throughout.

KOSTRZEWSKI, J.: **Investigations Concerning the Characteristics of Blood-serum in Individuals Inoculated against Rabies** (Untersuchungen ueber die Blutserumeigenschaften bei den tollwutschutzgeimpften Menschen). *Centralblatt fur Bakteriologie*, I. Abt., Orig., Febr., 1920, Bd. 84, s. 107.

Using an emulsion of fresh rabic cord as antigen, Kostrzewski demonstrated complement-fixing anti-bodies in the sera of patients at the completion of the Pasteur anti-rabic treatment. When immunization was performed by the dilution method of Högyes, complement-fixation appeared in a much smaller percentage of cases. As no controls are mentioned, it is not clear whether the complement-fixing anti-bodies are anti-rabic, anti-rabbit-nerve-tissue, or both.

Protective anti-bodies were demonstrated in the sera of patients as early as seven days after the completion of the Pasteur treatment.

A. H. EGGERTH.

EMERSON, H. W., AND COLLINS, G. W.: **Botulism From Canned Ripe Olives.** *The Journal of Laboratory and Clinical Medicine*, June, 1920, v, No. 9, p. 559.

There have been at least five small outbreaks of botulism in this country due to the eating of canned ripe olives. Four of these were due to *B. botulinus* of the Boise Type or Type A. Antitoxin for one type is specific for that type alone. Dickson's work has very recently demonstrated that antitoxin has definite protective value when ad-

ministered soon after the toxin. This menace to health and life should be removed by adequate government supervision of the plants. This supervision should include the fish packing and canning plants. All plants affected should find such a federal supervision of definite service to the plant.

The symptoms of botulism as shown by infected guinea pigs usually consist of the vomiting of a greenish colored fluid, an increase of saliva, dilated pupils, decrease in tonicity of abdominal muscles permitting the abdomen to hang low. The guinea pig usually rests on its abdomen with its extremities extended. The nose and mucus membranes are very cyanotic, temperature subnormal, and respirations are abdominal in type, weak and irregular. Death results in from twelve to forty-eight hours, depending upon the dose administered.

C. M. ANDERSON.

OSTI, G.: **Slowing of the Pulse in Graves' Disease During Sleep.** *Le Malattie Del Cuore e Dei Vasi*, Nov. 1, 1919; reported in *La Presse medicale*, April, 17, 1920, xxviii, No. 23, p. 230.

Osti has noted the remarkable difference between the restlessness during the daytime and the tranquillity at night of 2 patients suffering with undoubted, uncomplicated exophthalmic goiter. In both these patients, the pulse was constantly 120 per minute when they were awake, and 60 when sleeping.

The author enumerates certain pathologic states—fevers, anemias, cardiac decompensation, neuropathies—in which the difference in the pulse between the sleeping and wakeful state is never marked. It is also not marked in those cases of Graves' disease in which the pulse-rate is very high, or when an arrhythmia exists.

There are two factors in the production of tachycardia in goiter. One is hyperexcitability, which disappears during sleep. The other is some myocardial change, which cannot be influenced by sleep. Osti believes that the slowing which he observed is not due directly to changes in thyroid secretion; the secretory disturbance gives rise to the tachycardia, but the changes in the pulse-rate in sleep are due to a ration on the part of the neuro-regulatory apparatus which controls the heart.

S. KAHN.

MAYER-GROSS, W.: Cocainism Described by an Addict (Selbstschilderung eines Cocainisten). *Zeitschrift für die gesamte Neurologie und Psychiatrie*, 1920, lxii, p. 222.

A young doctor described his sensations as a cocaineist. His family showed artistic talent, his mother cyclothymiac symptoms in a depressive state. One brother had committed suicide. The patient was of an uneven temperament, but did not appear pathologic. During an attack of dysentery, while in the army, he took his first injection of morphin, and rapidly became an addict. He tried to break the habit by cocaine injections, and became addicted to this drug. He then had his first psychotic manifestations. Insomnia and hallucinations of animals brought him into the hands of psychiatrists. He reports:

At first, doses of from 0.05 to 0.1 grain (.0032 to .00648 gram) were taken per os. Then morphin was injected with the cocaine, subcutaneously. The first reactions were noticed in the former plan of administration after thirty minutes,—tachycardia, gastric pressure, excited state, as if intoxicated. In the combined drugs a reaction of an euphoric nature occurred after three minutes; it lasted twenty minutes. After a brief period of drowsiness the chronic reaction of bodily and mental excitement without euphoria set in. Thoughts began to fly; the effect was similar to that of caffeine. There was a worried condition, partly fear, partly anger, with desire to speak to others and of self-conversation. At night there were severe auditory hallucinations of burglars, of doors being forced, of the clatter of arms, visions of worms on the floor, changing shadows on the stairs, etc. All hallucinations were associated with some concrete happening. Renewed morphin injections did not quiet the nerves. Toward morning a state of unconsciousness set in. He went to town in slippers, tried to send off a telegram which he had sent two weeks previous. He thought he was in another town. After repeated treatment in a clinic he was cured, and has not again become addicted. Later he added some details to his description. From three to four minutes after a simple injection there was cerebral pressure, tenacious pulse, rapid pulse with increasing excitement. These symptoms increase for several minutes, decreasing during the next half hour. The pulse grows soft and full. Motor excitability persists in the tendency to walk and talk. These succeeded each other

very rapidly, being mainly of an associative nature. Selfconsciousness is the consequence of heightened mental activity. Euphoria differs from that in morphin reaction. When depression sets in after the short excitory state, renewed injections of morphin are resorted to. The rumbling of the street car will seem like many people walking and ideas of persecution ensue. People are heard entering the house, forcing doors, etc. The patient will sit for hours with a pistol waiting for the intruders. Often this state of excitement may last twelve hours.

Then a brief state of somnolence and loss of memory comes on, followed by the desire of useless activity. Visual hallucination occurs only in the later stages of poisoning. Tactile hallucination occurred after ingestion of the drug. In chronic poisoning the excitability is lessened, and paralyzing sensations are in the foreground. If one grain of cocain has been taken every day for three weeks, a dose of 0.1 to 0.2 gram may cause a slight acceleration of the pulse, but it does not become full, and vagus reaction is no longer felt.

Dyspnea will then be the main feature; breathing is slow, deep, spasmodic, painful. The quickened pulse is small and slowed. Hands and face, at first damp and hot, become cold. The image of red sparks, a roaring sound in the ears, tingling of the finger tips give a sense of fainting. These sensations may last from three to four hours. They stop suddenly.

After some weeks of excitability this particular patient got in a habit of increasing the number of hallucinations voluntarily. Primary doses of 0.05 grain of cocain are taken in tenfold doses after two weeks.

The patient had poor acoustic fancy, but he had a very keen auditory sense. Sexual desires, normally vivid, were entirely subdued on taking the drugs. There is a vividness of thought and general happy bodily sensation.

BLOCK, F. B.: **The Treatment of Acute Gonorrhea in Females.** *The American Journal of the Medical Sciences*, April, 1920, clix, Part 4, No. 577, p. 572.

The author offers no new method of treatment but makes a plea to the practitioner to use more time and care in the treatment of

this type of case. An erroneous idea is held that "once infected always infected"; this does not hold good if the organism has not passed the internal os. The cases are divided under the headings of acute urethritis and acute endocervicitis. The former is best treated by absolute rest, 10 minims (.6 c. c.) of santal oil three times a day, and a sedative prescription. Give water freely. No local treatment should be given for two or three weeks, or until the disappearance or diminution of the discharge. Local treatment consists of the use of silver preparations, using either a 15 per cent solution of silver nucleinate or a 5 per cent solution of silver nitrate, applied the entire length of the urethra on a small cotton swab. The patient should urinate just before treatment and the urethra should be well dried. Treatment should be continued for weeks, every two or three days, until three successive negative smears are obtained. Endocervicitis is treated by hot douches of a 1 to 8000 potassium permanganate solution four times a day. In about two weeks the discharge greatly lessens, and then local treatment can be given to the cervical canal. The most important point to be observed before applying any local treatment is the thorough cleansing of the canal with alkaline solutions, and then drying thoroughly. All mucus must be removed. Then a 10 per cent solution of silver nitrate is vigorously applied to the canal, up to the internal os, and immediately afterwards tincture of iodine. A local anesthetic may be used if there is much pain. The patient continues her douches at home and reports every three or four days at the office. When the discharges are scanty, smears are taken for examination.

A. T. MAYS.

ALVAREZ, W. C.: **Blood-pressure in University Freshmen and Office Patients.** *Archives of Internal Medicine*, Oct., 1920, xxvi, No. 4, p. 381.

A statistical analysis was made of the blood-pressures in 8,737 University of California freshmen and 1,000 office patients. The mathematical treatment of these data suggests that pressures over 130 mm. for the women and over 140 mm. for the men are abnormal. The arithmetical means for women between sixteen and forty was 115 mm.; for men, 126.5 mm.

The blood-pressure in young women is much more uniform than in men. The range for the women was practically from 85 to 155; for the men it was from 90 to 175. Fifty per cent of the women's readings fell between 105 and 119 mm.; 50 per cent of the men's fell between 116.5 and 136.5 mm. High blood-pressure appears earlier and to a greater degree in men than in young women.

The average blood-pressure in the women rose between the ages of sixteen and seventeen, then dropped up to the age of 25, and after that rose rapidly. Little can be said about the men's yearly averages because the usual type of men students was considerably altered during the war. Averages from office patients show that the pressure for women drops from puberty up to the age of 25, after which it rises so rapidly that the women catch up with and pass the men after 40 years of age. Apparently the changes in the gonads have more effect on blood-pressure than has the strenuous life. It is suggested that hypertension is based upon a hereditary peculiarity. Its manifestations appear to be suppressed in women as long as the ovaries function well.

From clinical experience, it is suggested that pressures over 127 in women and 130 in young men are indicative of a hypertensive diathesis which is associated with many typical symptoms and findings. Fifty out of 100 men will die of cardiovascular disease. This condition makes its appearance at different ages in the different men. The author believes that careful examination would disclose the beginnings of such disease in childhood and youth, even in those individuals who are to round out a fairly long life. He believes that a hereditary predisposition is the most important etiologic factor.

NOVAK, E.: **The Role of the Endocrine Glands in Certain Menstrual Disorders.** *Endocrinology*, iv, No. 3, p. 411.

Menstruation is a vegetative function, and since its mechanism is controlled by certain of the endocrine glands, the cause of menstrual disorders is to be found not infrequently in the disorders of these structures. The evidence that the internal secretion of the ovary controls menstruation is definite, but whether it is derived from the stroma, the follicles, or the corpus luteum of the gland is not definite. The weight of the evidence however lies in the direction

of the corpus luteum. The interrelation of the ovary and other endocrine glands, especially the thyroid, pituitary, and suprarenal bodies, is demonstrated by the influence exerted upon menstruation by disease in any one of them. Two menstrual disorders, primary or spasmodic dysmenorrhea, and uterine hemorrhage of the type commonly spoken of as idiopathic or functional, are mentioned as to their probable endocrine etiology. The most common cause for the former is defective development of the uterus, which is thought to have been brought about because of defect in secretion of other endocrine glands, not the ovary. There is much reason to believe that the earlier growth and development of the uterus is under control of the hypophysis, along with the other of the generative organs. The uterine bleeding under discussion is associated with a definite hyperplasia of the endometrium, which is in turn dependent upon a disturbed function of the ovary, and the possibility of its being due to hypersecretion rather than lack of secretion is proposed. The writer knows of no other clinical condition in which hypersecretion of the ovaries could be assumed with as much justification.

L. C. JOHNSON.

RUDOLF, R. D.: **The Therapeutic Use of Oxygen.** *The American Journal of the Medical Sciences*, July, 1920, clx, Part 1, No. 580, p. 10.

Oxygen is of value whenever the rate of oxygen supply is insufficient for the normal carrying on of life and in sickness due to high flying, mountain sickness, poisoning by CO, nitrates and arseniuretted hydrogen, and in the effects of war gas. It should be tried on all cases of cyanosis, acute respiratory conditions, such as pneumonia when anoxemia threatens. The tube and funnel method of administration is useless. It should be passed through a small rubber tube inserted into one nostril, rhythmically compressing the opposite nostril and closing the mouth during inspiration. This method will raise the percentage of oxygen to about 80 per cent. An expensive and affective way is to use the oxygen chamber. The Meltzer apparatus is very useful and effectual for oral insufflation.

A. T. MAYS.

SECTION ON LABORATORY AND RESEARCH

MYERS, V. C.: **Chemical Changes in the Blood in Disease. VI. Cholesterol.** *The Journal of Laboratory and Clinical Medicine*, Sept., 1920, v, No. 12, p. 776.

The importance of cholesterol is indicated by its widespread occurrence in the animal body. Luden has clearly demonstrated the augmenting influence of animal foods, particularly eggs, butter and meat on the blood cholesterol, while Rothschild and Rosenthal have advocated the use of diets low in cholesterol in the treatment of certain types of cholelithiasis with hypercholesterolemia.

Normally the "total fat" content of the blood-plasma amounts to from 0.6 to 0.7 per cent, but in the severe lipemia of diabetes figures as high as 26 per cent have been observed. The cholesterol content of the body runs a fairly parallel course with the total fatty acids in all cases, including lipemia, and on this account it is an excellent index of the degree of lipemia in diabetes. Cholesterol occurs in the blood in both the free and combined state. Free cholesterol is present in the corpuscles and to some extent in the plasma and the cholesterol esters are present in the plasma alone. Bloor and Knudson have found that in whole blood the average percentage of cholesterol in combination as esters is about 33.5 per cent, and in the plasma 58 per cent of the total cholesterol. Most of the data recorded in the literature, however, are for the total cholesterol of the blood, some of the results being on the plasma or serum, others on the whole blood. Normally the concentration of cholesterol is nearly the same on the plasma and the whole blood, although, if anything, the plasma content is slightly higher, and pathologically it seems to be subject to somewhat greater variations. The normal

value for the cholesterol content of blood serum has been given by a number of workers as from 0.15 to 0.18 per cent. This would make the figures for the whole blood from 0.14 to 0.17 per cent. Pathologically, many conditions have been recorded in which a hypercholesterolemia was found, while in a few conditions hypocholesterolemia has been noted. In general it may be stated that hypercholesterolemia is found in arteriosclerosis, nephritis, diabetes (especially with acidosis), obstructive jaundice, in many cases of cholelithiasis, in certain skin diseases, in the early stages of malignant tumors, and in pregnancy. The chief condition in which low values for cholesterol are found is anemia.

Rothschild and Wilensky give an excellent outline of the factors influencing the blood cholesterol:

- (1) The cholesterol content of the blood is lowered:
 - (a) By a diet which is poor in lipoids.
 - (b) By the occurrence of high temperatures.
- (2) The cholesterol content of the blood is increased:
 - (a) By a diet excessively rich in lipoids.
 - (b) By the presence of other diseased conditions, especially diabetes, arteriosclerosis, and nephritis.
 - (c) During pregnancy. This lasts for a variable period after evacuation of the uterus.
 - (d) By the obstruction of the common bile-duct. If the obstruction, however, is not absolute, as indicated by the degree of accompanying jaundice, the cholesterol content of the blood may not be increased.

A more marked hypercholesterolemia may be found in the lipemia of diabetes than in any other condition. Although the ordinary case of diabetes at the present time does not show lipemia in the sense that the blood is milky, still the lipoids of the blood are increased in all types of the disease. On this account the determination of the cholesterol alone should give valuable information regarding the lipid content of the blood in diabetes. In nephritis it is not possible to give a satisfactory interpretation of the increase of blood cholesterol. Since gall-stones are largely composed of cholesterol, it is reasonable to suppose that their appearance might be associated with an increase in the cholesterol content of the blood. In obstructive jaundice the cholesterol content of the blood should be elevated and bear a fairly definite relation to the intensity of the

icterus. That the cholesterol of the blood-plasma is lowered in anemia has been recognized for some time. Pacini (in this country) has recently presented some interesting observations on the blood cholesterol in pernicious anemia, giving data on the whole blood, serum, and cells. He found the cholesterol markedly decreased in the serum but relatively increased in the cells. He administered cholesterol in the form of lanolin as an inunction, and believed that he obtained benefit.

Myers ends his discussion by giving a method for determining the blood cholesterol.

C. M. ANDERSON.

MYERS, V. C.: **Chemical Changes in the Blood in Disease. VII. Chlorids.** *The Journal of Laboratory and Clinical Medicine*, Oct., 1920, vi, No. 1, p. 17.

Although the practical value to be derived from the estimation of the blood chlorids can hardly be compared with that of some of the other blood constituents already described, still it is believed that the preliminary estimation of the chlorid content of the blood in cases of nephritis may often be of great assistance, particularly in indicating the extent to which chlorids should be restricted in the diet. Furthermore this estimation should be utilized to determine when the blood chlorids have returned to their normal level. It is believed that in the past, chlorid restrictions have often been made when they were not indicated, and when indicated, have been continued until in some cases the chlorids of the blood reached a sub-normal concentration.

In general it may be stated that high blood chlorids have been found in nephritis, certain cardiac conditions, in anemia and some cases of malignancy (possibly due to an accompanying renal involvement), while low values have been observed notably in fevers, diabetes and pneumonia. The chlorid retention observed in most cases of nephritis apparently results from impaired renal function.

The excretion of chlorids and nitrogen seem to be fairly independent functions. In contrast to so-called parenchymatous nephritis, the function of excreting chlorids in interstitial nephritis appears to be much less impaired than that of excreting nitrogen. Conse-

quently a restriction in the chlorid intake in the latter condition may fairly quickly restore the chlorids to normal.

When cases of advanced nephritis with marked nitrogen retention are put on a restricted chlorid diet, it is sometimes noted that the blood chlorids drop to a subnormal level, such as is occasionally found in severe diabetes. A possible explanation for this is that, owing to the large amount of urea and sugar present in the blood in these conditions, less chlorid is needed to maintain normal osmotic conditions. This may also help to explain the increased blood chlorid in anemia.

It is of considerable interest that the chlorid retention in pneumonia is associated with a decrease in the chlorid concentration of the blood.

Normally the chlorid content of the whole blood, as sodium chlorid, amounts in round numbers from 0.45 to 0.50 per cent, while for the plasma the figures are about 0.12 per cent higher, i. e., 0.57 to 0.62 per cent.

Myers then gives a method for the estimation of the blood chlorids.

C. M. ANDERSON.

WELLS, C. W.: **Blood Chemistry Studies in Influenzal Pneumonia.**
Archives of Internal Medicine, Oct., 1920, xxvi, No. 4, p. 443.

One hundred and thirty-one specimens of blood from 61 cases of influenzal pneumonia, representing various degrees of severity, and obtained on various days of the disease, were examined during the influenza epidemic at the Base Hospital at Camp Travis, Texas. There was no increase of the chlorids, in spite of the fact that the urinary chlorids were diminished, just as in lobar pneumonia. Blood sugar readings were practically all above 0.1 per cent. There was a definite tendency to a retention of uric acid, urea, and to a less extent creatinin, the degree of retention to vary with the severity of the disease, although there is reported 1 remarkable case of recovery in which maximum figures were obtained of 5.8 mgs. of creatinin, 148 mgs. of urea N., and 11.8 mgs. of uric acid per 100 c. c. of blood.

The explanation for the retention of nitrogenous products in the blood in pneumonia is supposed to lie in several factors: the damage to the kidneys, the disintegration and autolysis of the inflamed lung and other tissues, and the impairment of circulatory efficiency.

T. HOWARD.

MAXWELL, S. S.: **Labyrinth and Equilibrium. I. A Comparison of the Effect of Removal of the Otolith Organs and of the Semicircular Canals.** *Journal of General Physiology*, 1919, ii, 123.

Much and Brener conceived the idea that we must distinguish two kinds of equilibrial functions in the ear, the one dynamic, through which movements of rotation are perceived, and the other static, by which is produced a definite orientation or sensation of position in relation to the lines of gravitational force, and that the first function is performed by the sensory structures of the semicircular canals and the latter by the otolith organs of the vestibule. The author points out that, although this view is widely accepted, the literature of the subject is full of contradictions and the experimental evidence is far from satisfactory.

His own experiments on the labyrinth show that no sharp differentiation exists between the functions of the otolith organ of the utricle and the ampullæ of the semicircular canals. He has found that a labyrinth from which ampullæ have been removed without injury to the vestibular portions possesses both dynamic and static functions and that on the other hand a labyrinth from which the otolith organs have been removed without injury to the ampullæ retains both static and dynamic functions.

The experiments in the article were made on dogfish. The results and character of the experiments may be summarized as follows:

(1) A dogfish from which all six ampullæ were removed maintained its equilibrium; the righting reactions occurred promptly; compensatory movements of the eyes occurred in response to rotations in all planes except the horizontal; the compensatory position of the eyes was retained when the animal was held in an abnormal position. These results seem to indicate the continuance of both dynamic and static function of equilibrium after complete removal of all the semicircular canals and all the ampullæ.

(2) After complete removal of the otoliths from the vestibules without injury to the ampullæ, the animal maintained its equilibrium in water, righted itself promptly and made compensatory motions to rotation in all planes. When it was held in an abnormal position, the compensatory position of the eyes was maintained, i. e., both static and dynamic functions continued.

(3) Destruction of both the semicircular canals and the otolith organs completely abolished all compensatory movements and equilibrium reactions of labyrinthine origin.

The author concludes that: the results show that the assumption of a sharp differentiation of function between the otolith-bearing, vestibular portions of the labyrinth and the semicircular canals is not justified by facts. They certainly reinforce each other, the reactions by one alone being always slower and less vigorous than is the case when both are intact. It would not be safe, however, to affirm that the functions are identical. The experiments demonstrated one sharp difference: viz, the absence of reaction to horizontal rotation if the ampullæ of the horizontal canals are removed.

W. H. EDDY.

BLAU, A. J.: **The Shick Test, its Control and Active Immunization Against Diphtheria.** *New York Medical Journal*, Aug. 28, 1920, cxii, 279.

In this paper Blau gives a brief outline of the salient features of the Shick test and active immunization against diphtheria.

Of a total of 434 cases tested, 70 never returned for a reading. Of 111 positive Shick cases, only 19 received the full series of three injections, and of these 19 cases Blau was able to retest only 12. Almost half of his positive cases received only one injection, as they never returned subsequently.

From these observations, he concludes that more than a third of the children under fourteen years of age are susceptible to diphtheria: i. e., they have no natural immunity against the disease. The greatest susceptibility is found between one and six years.

Although the immunity produced by active immunization with toxinantitoxin was not quite 100 per cent in his series, Blau thinks

that he can safely conclude that with repeated tests and injections, immunity against diphtheria could be produced in 100 per cent of the cases, provided the diligent coöperation of the patients could be obtained.

Whether this immunity is permanent in all cases he cannot positively state at the present stage of the investigation, but judging from the studies conducted at the Willard Parker Hospital (Diphtheria Hospital in New York City), once an immunity is established it is probably permanent.

The author concludes his paper with a plea for the necessity of popularizing the Shick test and active immunization both among the profession and the lay public.

M. KESCHNER.

HOSHIMOTO, H.: **The Influence of Thyroid Feeding upon the Physiological Action of the Pancreas.** *Endocrinology*, Jan. to March, 1920, iv, No. 1, p. 56.

White rats were fed on bread and milk, and then dried thyroid was added to the diet in doses of from 0.1 to 0.5 gram (1.543 to 7.716 grains). There resulted a marked decrease of the diastatic activity of the pancreas which varied from 42 to 90 per cent. This was more marked when the doses were large, and there was also in some cases a decrease in the diastase content of the intestinal juices. The stools often contained fat, and the author concludes that the steatorrhea of certain cases of Graves' disease is due to the hyperthyroidism, in which the deficiency of the external secretion of the pancreas plays an important rôle. It was also noted that thyroid feeding often resulted in enlargement of the pancreas.

L. C. JOHNSON.

HILL, A. V.: **The Four Phases of Heat-production of Muscle.** *The Journal of Physiology*, Aug. 19, 1920, liv, Nos. 1-2, p. 84.

On excitation the muscle gradually develops elastic potential energy. This potential energy reaches a constant value as the excitation proceeds; the potential energy disappears when the excitation

ends. In the presence of oxygen, certain recovery processes occur, which are accompanied by an evolution of heat, and which restore the muscle to its internal condition.

Thus the four phases of muscular contraction are, the development of the mechanical response, its maintenance and its disappearance, followed by the oxidative recovery from activity.

The question was put "What happens to the potential energy of a muscle excited isometrically, when the muscle relaxes?" Two things are possible: the potential energy, if not utilized in doing work, might be reabsorbed for use in a subsequent contraction, or it may be degraded into heat by processes, analogous, for instance, to leakage, diffusion or neutralization. The experiments have decided that the latter is the case.

During the development of tension in an isometric contraction both heat and potential energy are produced by the muscle. During the maintenance of the tension (as in a tetanus) heat alone is being liberated. There then apparently comes a short gap, during which no appreciable heat is liberated and the tension begins to decline. Then there occurs a considerable evolution of heat derived from the potential energy lost in relaxation. Finally slow oxidative recovery develops.

The examination was carried on by means of a galvanometer, a thermopile and a muscle chamber, the latter of vulcanite, which is a good non-conductor of heat. The stimulating current passed from the potentiometer, through a resistance box, in which 1000 ohms were always kept, to a pair of small switches to which the leads from the stimulating electrodes in the muscle chamber were connected. An earth-connection was provided.

The photographic records of the deflection, produced in the galvanometer by the rise of temperature of the excited muscle, show a horizontal start, bending around gradually, reaching a maximum in a few seconds and then returning more or less slowly to the original base-line. The initial chemical breakdown following excitation is entirely non-oxidative in character. The maximum work and the heat-production of relaxation, are derived from the same thing, the potential energy, liberated on excitation.

It is concluded that the processes of recovery go on very slowly at low temperatures, being subject to a temperature coefficient of the same size as most chemical reactions occurring in the body; or the

processes of recovery at a low temperature are more "efficient" than at a high one, nearly the whole energy of the oxidized bodies being stored in the muscles ready for a subsequent contraction.

OSBORNE, T. B., AND MENDEL, L. B.: **Nutritive Factors in Plant Tissues. III. Further Observations on the Distribution of Water Soluble Vitamin.** *Journal Biological Chemistry*, 1920, xli, 451.

Alfalfa, cabbage, clover, spinach, timothy, beet, carrot, turnip, commercially canned tomatoes and potatoes were studied for vitamin "B" content by feeding to rats receiving a diet adequately for them except in respect to lack of water soluble "B" vitamin. The source was fed to normal healthy rats and observations made as to whether the product offered supplied what was needed to produce normal growth. "A" was supplied as butter fat. Protein as meat residue, salt mixture, starch and lard supplied the rest of the basal diet. Experiments were for a period of eight weeks.

Alfalfa and clover were found richest. Tomato and potato were found rich in the vitamin. Spinach, cabbage, turnip and carrot were not widely unlike as sources but 1 gram doses did not surpass .5 gram doses of alfalfa and clover. Timothy proved disappointing in the long run as a source. Beets were also poor in the vitamin in comparison to the other roots. Dried potato peel is no richer in vitamin than corresponding quantities of whole potato nor was any marked difference observed between old and new potatoes.

W. H. EDDY.

NAGAYAMA, T.: **Renal Activity and the Acid Base Equilibrium.** *American Journal of Physiology*, 1920, li, 434.

In order to determine whether changes in the acid base equilibrium of the body influence renal activity, the urea excreting capacity of the kidney was measured after the administration of acid and alkaline sodium phosphate salts. A distinct decrease in the urea excreting function was observed after acid phosphate, i. e., the decrease in the alkalinity of the plasma reduces the urea ex-

creting activity of the kidney. Alkaline phosphate increased the alkalinity of the plasma only slightly and had no appreciable effect on renal function. Administration of sodium bicarbonate in amounts that markedly increased the alkalinity of the plasma was accompanied by a slight decrease in the urea excreting ability of the kidney.

W. H. EDDY.

Ross, E. L.: **Effect of Atropin on Chloroform Hyperglycemia.** *Journal of Pharmacology and Experimental Therapeutics*, April, 1920, xv, No. 2, p. 135.

Dogs were used in the experiments and it was found that the administration of chloroform anesthesia for fifteen minutes gave an increase in the sugar of over 29 per cent. The administration of atropin before the chloroform anesthesia had no effect on the glycemia. Ether anesthesia gave a glycosuria of +1 per cent which fell to 9 per cent in those animals given atropin. Ether and chloroform were added to dead liver glycogen to test the activity of these anesthetics in the liberation of dextrose from glycogen. No such activity was noticed.

Atropin used before ether or chloroform anesthesia did not alter the heart-rate or respiration.

H. M. FEINBLATT.

MACHT, D. I., GREENBERG, J., AND ISAACS, S.: **The Effect of Some Antipyretics on the Acuity of Hearing.** *Journal of Pharmacology and Experimental Therapeutics*, April, 1920, xv, No. 2, p. 149.

The authors studied the acuity of hearing in the normal state and after the use of drugs. Observations were made upon themselves and upon a large number of students. The ticking of a watch was the test employed. Ten of the common antipyretics were studied individually and a number in combination.

The acuity or threshold of hearing was found to be definitely decreased by the following antipyretics: acetanilid, sodium salicylate, acetyl salicylic acid (aspirin), and phenyl salicylate (salol). The threshold of hearing was found to be increased after the following: acetphenetidin (phenacetin), antipyrin and pyramidon.

The effects of combinations gave in most cases an increase in the threshold. Acetanilid plus salol, phenacetin plus salol, and antipyrin and salol increased the threshold of hearing 55 per cent, 65 per cent and 150 per cent respectively. Though sodium bicarbonate had no action on the acuity of hearing it acted in combination with acetanilid to improve the threshold of hearing to over 60 per cent more than the normal.

H. M. FEINBLATT.

TENBROECK, C.: **A Group of Paratyphoid Bacilli from Animals, Closely Resembling Those Found in Man.** *The Journal of Experimental Medicine*, July 1, 1920, xxxii, No. 1, p. 19.

The author made cultures of paratyphoid organisms from swine affected with hog-cholera virus, from guinea pigs, and from a cow, a pigeon, and a mouse. No differences were observed culturally between this group of organisms and a control of B. Schottmüller. Cross-immunization tests showed that paratyphoid cultures from swine and calves would immunize rabbits to hog cholera, whereas human cultures would not.

The sera produced in the immunized animal will agglutinate human as well as animal paratyphoids in the same titer. The group could be separated by agglutination absorption tests; the animal strains will absorb from B. Schottmüller sera the agglutinin for all the cultures, leaving those for the human cultures. The human strains act in the same way to absorb the human agglutinins.

H. M. FEINBLATT.

SISSON, W. R., AND FINNEY, J. M. T., JR.: **Effect of Feeding the Pineal Body Upon the Development of the Albino Rat.** *The Journal of Experimental Medicine*, March 1, 1920, xxxi, No. 3, p. 335.

In the hope of adding further knowledge concerning the function of the pineal body in its relation to growth and early sexual changes, the pineal body of young calves was fed to albino rats. The experiments were begun immediately after weaning, when the rats

were about three weeks old. The pineal gland was dried, freed from fat, and was given once or twice daily, it being mixed with bread and milk. Doses of from 10 to 100 mg. (0.1540 to 1.540 grains) of the dessicated powder were administered and observations were made in regard to all the gross developmental changes, texture of the coat, the state of nutrition, body weight, the activity of the animals, the descent of the testicles and their appearance. The rats were killed at intervals of three, five and six weeks, after the beginning of the experiment.

Fourteen rats were so fed and ten were used as controls. The pineal-fed rats remained somewhat smaller than the controls in the first two litters; in the third and fourth litters, there was no difference in development. Microscopical studies showed no differences between pineal-fed and control rats.

H. M. FEINBLATT.

LEVIN, I., AND LEVINE, M.: **Malignancy of the Crown-gall and its Analogy to Animal Cancer.** *Journal of Cancer Research*, July, 1920, v, 243.

In several extensive publications Dr. Erwin F. Smith showed the tumor nature of crown-gall, a disease of plants. He was able, also, to isolate from these tumors a bacterium resembling *B. coli communis*, with which, by inoculation, he could cause the development of the tumor process referred to. From these experiments Smith drew the conclusion that "human cancer (also) must be due to a parasite."

The present authors have renewed Smith's investigations and they have confirmed his observations. They have found crown-gall to be a neoplastic disease occurring both as a benign and a malignant condition and caused by *Bacterium tumefaciens* (E. F. Smith).

However, they look upon the benign form of the gall as analogous to granuloma or cheloid in man, and they do not consider the malignant transformation of the gall to be caused directly by the microorganism of Smith, but they think that it "is due, as in every type of animal and human cancer, to some mechanism within the organism of the host, independent of the microorganisms, the nature of which is not known."

A. F. COCA.

BEVIER, G., AND SHEVKY, A. E.: **Urea Secretion after Suprarenalec-
tomy.** *American Journal of Physiology*, Nov., 1919, 1, 191.

These experiments were instituted to justify the hypothesis that an epinephrin-pituitrin balance may exist in the blood which can alter the rate of renal activity in the handling of urea. It has been shown that while the rate of urea excretion is primarily a function of the concentration of the urea in the blood, the rate of urea excretion at any given blood-area concentration is accelerated after the injection of epinephrin and depressed after the injection of pituitrin. One way in which the existence of an epinephrin-pituitrin balance can be investigated is by a double suprarenalectomy which leaves the pituitary effect unopposed. The results of such a method of study are reported in this paper. From them the author draws the following conclusions: the removal of the suprarenal glands in rabbits is followed by a depression of the rate of urea excretion by the kidneys; the form of the curve obtained by plotting the ratio between the urea excreted per hour and the concentration of the urea in the blood, for the various intervals of the experiment, is modified after suprarenalectomy in a manner strikingly like that obtained by the subcutaneous injection of optimum doses of pituitrin, and in a manner contrary to that obtained after the injection of epinephrin. These findings seem to support the hypothesis of the epinephrin-pituitrin balance.

W. H. EDDY.

GRANT, S. B., AND GOLDMAN, A.: **A Study of Forced Respiration:
Experimental Production of Tetany.** *American Journal of Phys-
iology*, 1920, lii, 209.

The fact that tetany may be so readily produced by parathyroidectomy in animals, the question of the relation of parathyroid tetany to idiopathic tetany in man and other reasons make this disease an interesting subject for experimentation. The present study was undertaken primarily to determine whether the alkaline urine, which came from a patient required to go through a period of increased respiration, was due to over-ventilation. In the course of the study it was found that all the essential symptoms of tetany could be pro-

duced in the human subject by forced respiration. These include carpopedal spasm, Chvostek's sign, Trousseau's sign, Erb's sign and in one case a tetanic convulsion.

As a result of the fall of alveolar CO_2 -tension produced by over-ventilation, there is a reduction in the hydrogen ion concentration of the blood, a reduction of the CO_2 capacity of the plasma, a change in the reaction of the urine to the alkaline side, a decreased excretion of ammonia, and a slight increase in the calcium content of the serum.

In brief, the underlying factor in the tetany of forced respiration is the alkalosis.

W. H. EDDY.

STEWART, G. N., AND ROGOFF, J. M.: **Further Observations on the Relation of the Spinal Cord to the Spontaneous Liberation of Epinephrin from the Adrenals, and the Action of Strychnin after Cervical Cord Section.** *American Journal of Physiology*, 1920, li, 484.

This paper reports the continuance of previous work on the liberation of epinephrin after transection of the cervical cord at various levels in acute experiments on cats and its confirmation and extension to other species (dog, monkey and rabbit). In acute experiment the epinephrin out-put may be either unaltered or diminished by the transection.

(1) Evidence is given that when the out-put is diminished, it is due to "spinal shock" of the mechanism in the thoracic cord concerned in sustaining the epinephrin out-put. When the bulb and brain were eliminated by a bloodless method (ligation of the head arteries), the out-put remained uniformly undiminished. These results apply to cats.

(2) In dogs and in the 2 monkeys examined the epinephrin out-put in acute experiments was always diminished by transection of the cervical cord, owing, it is suggested, to the greater susceptibility of these animals to spinal shock of the epinephrin secretory mechanism.

(3) In survival experiments, i. e., where the cats and dogs used were allowed to survive transection of the cervical cord from two to thirteen days, the out-put never equalled the average ordinary

out-put though it was often substantial. The out-put in dogs more nearly approached that found in animals with intact nervous system than in cats, the opposite of what was seen in acute experiments, as if the secretory mechanism in dogs, although more easily depressed by the spinal section, recovered to a greater degree in the relatively short periods for which the animals were kept alive (up to thirteen days). It is not known whether the better general condition of the dogs as compared to that of the cats after the operation is a factor in this recovery.

(4) Strychnin markedly increases the epinephrin out-put after transection of the cervical cord in both acute and survival experiments. The action is central (on the thoracic cord).

W. H. EDDY.

KODAMA, R.: **Ocular Reaction in Anaphylaxis.** *The Journal of Infectious Diseases*, Jan., 1921, xxviii, No. 1, p. 48.

This study is limited to the reaction of guinea pigs to horse serum. Generally speaking, the immediate effect of the application of horse serum to the eye of normal and of sensitized guinea pigs is dilatation of the lid and pupil succeeded by contraction. In the sensitized animal, however, the response is more prompt and vigorous. The primary dilatation would seem to be the result of stimulation of the tarsal smooth muscles of the lid and the dilator smooth muscle of the iris. In cases of anaphylactic shock the eye phenomena mentioned may be increased as a result of the asphyxia and other general effects. The secondary narrowing of the lid fissure and contraction of the pupil may be due to loss of the tonus of the tarsal muscle and of the dilator pupillæ, on the one hand and to the contraction of the sphincter muscle of the iris associated with congestion, on the other hand. The primary and secondary effects on the smooth muscles of the lid and iris of guinea pigs suggest that the anaphylactic action involves the ends of both the true and parasympathetic nerve fibers on both sets of plain muscles in the lid and the iris. In addition to these phenomena, anaphylactic intoxication may be associated with more or less well-marked circulatory disturbances with edema and congestion of lid, conjunctiva, iris, and ocular fundus, hemorrhage of epibulbar and retinal vessels. The direct application of

heated or unheated horse serum to the eye may cause vascular dilatation in the normal, but hemorrhage is observed, especially in the sensitized guinea pigs and this effect may be obtained independently of asphyxia; hence it is due to direct action on the vessels. In normal and sensitized guinea pigs, horse serum may cause hypersecretion of the lacrimal and harnerian glands, especially in the sensitized animal. In addition to the characteristic postmortem changes in anaphylactic shock, seen especially in the dilatation of the lungs, congestion and hemorrhagic extravasation, we have to make special note of a rapid and strong contraction of the pupil after anaphylactic death.

M. M. BANOWITCH.

HEINEKAMP, W. J. R.: **The Action of Adrenalin on the Heart.** *Journal of Pharmacology and Experimental Therapeutics*, Nov., 1920, xvi, No. 4, p. 247.

The experiments were done in order to determine the cause of death under chloroform following the injection of adrenalin. These experiments show that chloroform when inhaled or injected intravenously produces a toxic effect on the heart resulting in dilatation and permanent weakness. This action is direct since it occurs after section of the vagi and after atropin. The heart is slowed because of its toxic condition.

In a few experiments performed on dogs 0.1 c. c. of chloroform injected intravenously caused the blood-pressure to rise slightly and immediately to begin to fall and the heart to weaken. Adrenalin injected at this time induces paralytic dilatation and occasionally fibrillation. In all cases examination of the heart postmortem showed a dilated organ. Resuscitation cannot be affected when once the heart has become paralytically dilated and ventricular fibrillation has supervened. The author concludes that adrenalin is contraindicated wherever chloroform is used and that chloroform is contraindicated wherever adrenalin has been employed. The higher the blood-pressure, the more easily does the above action occur. The adrenalin action is peripheral since it occurs after section of the vagi.

R. H. BENNETT.

SECTION ON PEDIATRICS

PELFORT, C.: **Measles and Whooping-cough.** *Archivos Espanoles de Pediatria*, Nov., 1920.

The frequent association of these two diseases sometimes makes it difficult to work out the problem as to which was the original condition. Usually, however, it is logical to suppose that the measles cases, from their isolation, are less likely to contract pertussis than vice versa. The coëxistence of these two diseases is a serious one, on account of the respiratory complications.

W. H. DONNELLY.

PONCE DE LEON, M.: **Measles and Diphtheria.** *Archivos Espanoles de Pediatria*, Nov., 1920.

A recent epidemic of measles in Montevideo was so associated with diphtheria as to attract attention. Of 103 cases of diphtheria admitted to the contagious pavilion of the Children's Hospital, 43 had measles before, during, or after admission. Of these 43 cases, 18 had the ordinary diphtheritic angina, 23 had diphtheritic croup, one had diphtheritic conjunctivitis, and one had a combination of diphtheritic angina, conjunctivitis and rhinitis. As a result of careful observation, the following conclusion seems justified: The catarrhal congestion of the mucus membranes present in measles, encourages the growth of the *Bacillus Diphtheriae*, even in the period of full eruption.

In the event of the appearance of croupal or laryngeal symptoms, even without any false membrane, serum should be injected at once.

without awaiting the laboratory report. Every pseudomembranous exudate seen in the throat of a measles case, should be carefully examined from the laboratory standpoint, and in the absence of such facilities, the case should be treated by the early and sufficient administration of antitoxin serum.

W. H. DONNELLY.

NOBECOURT, P., AND SCHREIBER, G.: **The Birth-rate and Infant Mortality (in France).** *Archives de Médecine des Enfants*, Paris, 1920, xxiii, 385 and 474.

Since 1866, there has been a fall in the birth-rate in Europe, but it has been greatest in France. The death-rate exceeded the birth-rate in 1911, was lower than the birth-rate in 1912 and 1913, but has been higher since 1914. Statistics prove that the future of France is endangered by this reduction of population.

There are two methods of correcting this condition, one by increasing the birth-rate which is more a social and moral question than a medical one, and by reducing the mortality. The latter should not be limited to curing patients but should be extended to eradicating the causes of death, especially during infancy. During the embryonic and fetal period much ought to be done, for the proportion of abortions to living births in France ranges from 1 to 5 to as high as from 1 to 9. Similar figures are reported in Germany. Syphilis, tuberculosis, cancer, different intoxications, alcoholism, acute infections, injuries, lack of prenatal care as well as voluntarily induced abortion, are responsible for these percentages. The frequency of these factors can be reduced. The percentage of still-births to live births is 44 to 10,000.

One-fourth of the total death-rate is in children up to fifteen years of age. One-third of all children die before reaching the age of fifteen years. The highest mortality is among infants under one year of age. More than one-third of the deaths during the first year occur in infants less than one month old. The mortality decreases as the age increases. Since 1895 the infant mortality has been steadily reduced.

Improper feeding is the greatest cause of infant mortality. Among breast-fed babies the death-rate varies from 4.14 per cent

in the country to 15 per cent in cities. Among infants sent out to wet-nurses the mortality ranges from 10.5 per cent to 50 per cent. With artificial feeding the figures are usually higher and vary from 10 per cent to 63 per cent.

Insufficient milk, milk of poor quality, and milk rendered toxic by the mothers' working in tobacco factories and lead industries are the most frequent causes for nutritional disturbances in breast-fed infants. The reasons for artificial feeding being inferior to breast-feeding are the chemical differences of cow's and woman's milk and the fact that the milk from cows that have fed on beets, silage, refuse from distilleries and breweries, or from cows that are pregnant or sick, or that have diarrhea, may produce fatal gastro-enteritis in babies. Cow's milk from dirty dairies, and milk which has not been properly pasteurized is dangerous. Improper methods of feeding, such as irrational modifications of milk, incorrect holding of the bottle, and irregular intervals of feeding, are other correctable reasons for the inferiority of artificial feeding. After weaning, attention should be paid to the quality and choice of a balanced diet to prevent rickets and nutritional disturbances.

En résumé bad feeding is a very important cause of the morbidity and mortality during early infancy. To procure good nutrition for infants is one of the most important points in the fight against infant mortality.

The statistics of the principal cities of France from 1892 to 1901 show that as causes of death in infants under one year of age gastro-intestinal affections were responsible for from 20 to 40 per cent, and respiratory affections for from 12 to 21 per cent. Most contagious diseases are rare at this age, but, with the exception of varicella, are often severe when they occur. Pertussis, however, is not rare and is frequently fatal. Tuberculosis is a common cause of infant mortality. According to A. Fournier only 32 per cent of the pregnancies among syphilitic individuals result in the birth of a living child. From 15 to 32 per cent of infants under one year of age die of congenital debility and prematurity. Rest during the latter portion of pregnancy will increase the length of the pregnancy as well as the weight of the fetus. Poor home hygienic conditions, absence of light and air, city life, employment of pregnant women, lack of maternal nursing, alcoholism, illegitimacy, hot climate and summers, and finally cross infections in hospitals and

asylums are important secondary causes of infant mortality. This can be greatly reduced if the child is protected before birth, if maternal nursing and rational feeding are encouraged, if sick babies are treated, and if contagious diseases, especially tuberculosis and syphilis, are vigorously fought.

W. C. DAVISON.

GARCIA DEL DIESTRO, J., AND BARRIO, N. G.: **Kala-azar in Madrid.** *Archivos Espanoles de Pediatria*, Dec., 1920.

Three cases reported by the writers seem to permit certain comments. In the first place, infantile leishmaniosis seems to exist endemically in the Spanish capital. The cases seen conformed to the classical description of the disease as seen in the sea-coast regions. Tartar emetic, while efficacious as a remedial agent, is quite toxic, and irritant to the tissues, so that it must be given intravenously; consequently it is very inconvenient to use. For the above reasons certain organic antimony products have been tried with success, especially the acetyl-p-amino-phenyl-stibiato of sodium. This compound salt contains 38½ per cent of antimony, and the technic of its preparation for administration is the same as that of arsenobenzol. However, the route of election is the intramuscular, and the dosage is from 3 to 15 cgs. (.4629 to 2.3145 grains), according to the body weight of the child.

W. H. DONNELLY.

HAUSALTER, P., AND KAHN, P.: **A Case of Postcommotional Amyotrophy in an Infant Following a Shell Explosion.** *Archives de Medicine des Enfants*, Paris, July, 1920, xxiii, 423.

The patient, who was very active, normally developed, and able to stand unassisted, was severely frightened during a prolonged air raid at the age of nine months. After the bombardment she lost the power to stand and could not move her limbs. Muscular power did not return until two years later. From that date on her improvement was gradual and at present she has a diffuse paresis, predominating in the lower limbs, generalized amyotrophy; her

muscles give the electrical reaction of degeneration but she has never had cerebral trouble. Amyotonia congenita (Oppenheim's disease) is eliminated by the fact that the paresis did not appear until the ninth month, and spinal amyotrophy (Hoffman-Werding disease) is eliminated by the sudden onset, the subsequent regression and partial recovery.

It has been shown in animals that proximity to exploding shells causes microscopical hemorrhages in the spinal cord. Probably in this case such a condition was produced in the anterior horns.

W. C. DAVISON.

ACHARD, C., AND RAMOND, L.: **Electrical Chorea of Henoch-Bergeron.** *Archives de medicine des Enfants*, Paris, Oct., 1920, xxiii, 603.

This is the report of the case of a boy of fourteen and one-half years, who after a great fright developed generalized myoclonic contractions without preceding pain and fever. These conditions persisted for some time without any variation. The characteristics were not those of the myoclonia of encephalitis.

W. C. DAVISON.

DENZER, B.: **A New Method of Diagnosis of Peritonitis in Infancy and Childhood.** *American Journal of Diseases of Children*, August, 1920, xx, No. 2, p. 113.

The objections to the use of metal needles in puncturing the peritoneum to obtain fluid for diagnostic purposes are, that considerable fluid must be drawn before it appears in the syringe, and that due to the suction, the omentum or the intestine are apt to block the lumen of the needle. Denzer uses a glass tube three-sixteenth of an inch thick with a bore of one-thirty-second of an inch, drawn to a point and beveled. Capillary attraction is aided by a bulb being blown into a bent tube.

The technic follows: After preparing the abdomen for puncture, a 17-gauge steel needle is used to puncture the skin in mid-line one-half inch below the umbilicus. The glass needle is inserted through this opening and in a perpendicular direction is pushed

inward until the sudden release of pressure indicates that the needle has entered the peritoneal cavity. The needle is not so liable to break if pressure is made parallel to the long axis of the needle.

This procedure has been tried in a small series of normal cases, in 2 cases of ascites in which the diagnosis had not been established before, and in 1 case of peritonitis. In the latter, sufficient purulent fluid was obtained to make smears and culture. Further studies in peritoneal fluids are forthcoming.

T. B. GIVAN.

TALBOT, F. B., AND BROWN, L. T.: **Bodily Mechanics.** *American Journal of Diseases of Children*, xx, No. 3, p. 168.

By good bodily mechanics is meant the proper alignment of the parts of the human anatomy. That poor bodily mechanics is the cause of many abdominal and thoracic symptoms heretofore attributed to other factors, was well demonstrated in the army, where a large number of nearly 50 per cent physically unfit in our draft army were brought up to military efficiency by proper physical education. If this had been done before the war, in other words during childhood, much time and money could have been saved and human wastage could have been avoided.

The authors undertake to prove that bad bodily mechanics influences the health, by an examination of all Harvard Freshmen in this respect. A tracing was taken of each; these were found to fall into four groups, designated A, B, C, and D.

Group A (7.5 per cent).—Good mechanical use of body.

- (1) Head straight above chest, hips and feet.
- (2) Chest up and forward.
- (3) Abdomen in or flat.
- (4) Back, usual curve not exaggerated.

Group B (12.5 per cent).—Fairly good mechanical use of the body.

- (1) Head too far forward.
- (2) Chest not so well up or forward.
- (3) Abdomen, very little change from Group A.
- (4) Back, very little change from Group A.

Group C (55 per cent).—Bad mechanical use of the body.

- (1) Head forward of chest.
- (2) Chest flat.
- (3) Abdomen relaxed and forward.
- (4) Back, curves are exaggerated.

Group D (25 per cent).—Very poor mechanical use of the body.

- (1) Head still farther forward than in Group C.
- (2) Chest still flatter and farther back than in Group C.
- (3) Abdomen completely relaxed "slouchy".
- (4) Back, all curves exaggerated to the extreme.

No one in groups A and B complained of back-ache; more than 6 per cent in C and 8 per cent in D did. Functional albuminuria and operations for appendicitis were much more common in C and D.

Fifteen cases of children are presented, some showing indigestion of fat, some being chronically constipated, 5 with cyclic vomiting and some with acute abdominal pain with constipation. By means of a properly fitted abdominal belt, together with corrective exercises, these conditions were relieved much more speedily than occurs otherwise.

T. B. GIVAN.

RAMSEY, W. R., AND GROEBNER, O. A.: **Further Progress in the Study of the Relative Efficiency of the Different Mercurial Preparations.** *American Journal of Diseases of Children*, xx, No. 3, p. 199.

Observations on the amount and rapidity of absorption of the common mercurial preparations in use, as determined by quantitative estimate of the amounts eliminated in the urine, were made with the following conclusions:

(1) Mercurial ointment, 50 per cent, is more efficacious than the weaker preparations and need not be given more than twice weekly, as it is eliminated for three or four days following the rub. Friction increases the absorption of the ointment.

(2) Calomel ointment is absorbed less rapidly and should be given in concentrated form.

(3) Give salicylate of mercury in oil intramuscularly, twice weekly, instead of once.

(4) Mercuric chlorid, hypodermically, even in small doses, continues to be eliminated for six or seven days. Its use is condemned, since the appearance of protein in the urine follows its use.

(5) Calomel by mouth continues to be eliminated in small amounts for six or seven days; hence it should be given at intervals of several days.

(6) It is necessary to give gray powder in large doses repeated daily to maintain mercury in the circulation, as it is eliminated rapidly.

T. B. GIVAN.

GREIVE, J. E.: **Report of A Case Of Diaphragmatic Hernia.** *Archives of Pediatrics*, Oct., 1920, p. 593.

Greive reports an unusual case of diaphragmatic hernia in a girl five and one-half years old, who had presented symptoms from birth of severe attacks of coughing and uncontrollable vomiting, no matter what foods were tried.

She retained, apparently, just enough food to maintain life. The mother had pertussis before and at the time of delivery of the child, which was full term and weighed four pounds. The baby developed pertussis soon after birth and continued coughing to the present age.

Physical examination revealed a poorly nourished child, weighing twenty-eight pounds. Percussion over the lower right chest revealed flatness, which shifted with the position of the patient. The heart apex was shifted slightly to the right, being influenced by the taking of food, as shown by *x-ray*. Other studies by the *x-ray* revealed that the stomach was in the left thoracic cavity, the pylorus was below the diaphragm, and the diaphragm was causing the obstruction. A successful surgical operation was performed, whereby the stomach was pulled back into its normal position and attached, the rent in the diaphragm being closed. The patient's weight increased, being forty-three pounds six months after operation, and an *x-ray* examination at this time showed a normal position of the thoracico-abdominal organs.

This was a case of hernia of the stomach due to rupture of the diaphragm from the paroxysms of pertussis.

T. B. GIVAN.

MARFAN, A. B., and RABUTEAU, N.: **A Band of Scleroderma of the Left Lower Limb with Zoniform Vitiligo of the Right Half of the Abdomen in a Syphilitic Girl.** *Archives de médecine des Enfants*, Paris, Sept., 1920, xxiii, 532.

The case reported is that of a girl of four and a half years. On the anterior surface of the lower half of the left thigh a red zone appeared. This gradually became raised and in two months the skin of this band was yellowish white, thickened, hard and impossible to bend. In spite of electrical treatment and local applications of lime preparations, the condition spread to the knee within two months. Almost all of the skin of the leg without previous edema became brown, hard, parchment-like, depressed and unbendable. There was no involvement of the sensation and movements. In addition two patches of vitiligo the size of a silver dollar appeared on the lower part of the right abdominal wall. The Wassermann was positive. The progress was arrested with mercurial treatment and improvement followed novarsenobenzol and thyroid therapy. Appreciable lesions still remained after two years and there was a partial arrest of development of the left leg. Exchaquet reported a similar case unaffected by antiluetic and thyroid treatment. Because of its distribution, if syphilis was the cause, it must have produced these two lesions by involvement of the nerve roots.

W. C. DAVISON.

WILSON, M. G.: **The Circulatory Reactions to Graduated Exercise in Normal Children.** *American Journal of Diseases of Children*, xx, No. 3, p. 188.

The studies to determine the functional capacity of the heart by means of the effect of the graduated exercise on the pulse-rate and systolic blood-pressure as carried out by Barringer and Cotton, Rapport and Lewis on adults, has been extended to children by the author. As exercise has proven to be of value in chronic valvular disease and other disorders in children, it is necessary to know the "exercise tolerance".

The observations were made on 20 normal children between six and thirteen years of age. The pulse-rate, the systolic blood-pressure

and clinical symptoms were noted on each child at two-day intervals for from two to eight weeks. The exercise consisted in swinging dumbbells of from three to ten pounds weight, graduated until the maximum effort was reached as shown by dyspnea, flushed face, perspiration and fatigue. Proper controls were used. Readings were made at frequent intervals before exercise and within ten seconds after exercise and at five-minute intervals until a maximum reading was reached. Later, readings were taken at ten-second intervals until normal was approached.

The conclusions reached were: (1) Circulatory reactions to graduated exercises in normal children are similar to those in adults.

(2) These reactions are constant over a period of weeks, immediately following similar graduated exercises.

(3) The "exercise tolerance" cannot be determined from the pulse-rate.

(4) A type of systolic curve after exercise, showing an increased rise, delayed rise and summit, and a prolonged fall, and associated with symptoms of marked dyspnea and fatigue, would seem to indicate that the "exercise tolerance" of that particular child has been temporarily reached or exceeded.

T. B. GIVAN.

COMBY, J.: **The Role of the Outer Covering (hull) of Cereals in Infant Feeding.** *Archives de medicin des Enfants*, Paris, Nov., 1920, xxiii, 668.

Comby summarizes Figueiras' application to infants of Aron's feeding experiments on mice. Aron reported that mice would gain on a diet of casein, butter, salt and wheat bran, but that when cellulose was substituted for the wheat bran, growth did not occur. The addition of a concentrated watery extract of wheat bran, or of malt to the cellulose caused development to be resumed. Figueira added this wheat bran extract to the diet of 11 infants whose ages varied from seven weeks to eight months and who had not been gaining in weight on cow's milk mixtures. In every case he noted a marked gain in weight so that he concluded that nutrition in infants was dependent upon vitamins and diet deficiency.

W. C. DAVISON.

SECTION ON
ROENTGENOLOGY AND ELECTRO-
THERAPEUTICS

COLLECTED ABSTRACT OF THE LITERATURE ON
ROENTGENOLOGY FOR THE YEAR 1919

By I. SETH HIRSCH

THE RENAL TRACT

(Continued from page 274)

D. N. Eisendrath (The Diagnosis of Ureteral Calculi, *Surg., Gynec. and Obstet.*, Nov., 1918, pp. 461 to 468 [with 17 figures and 2 radiographs]) cites the findings of several renal and ureter cases, and indicates the difficulties that are met with in many of these cases in making a correct diagnosis. The clinical history cannot be absolutely relied upon to make a diagnosis of ureteral calculus, as there are many other conditions giving rise to ureteral colic which must be excluded; nor does the presence of a shadow along the course of the ureter necessarily mean a calculus. The three best methods of determining whether the shadow lies within or without the ureter are, the *x*-ray catheter, ureterography, and stereoradiography, with an opaque catheter *in situ*. The last is most reliable. The intensification of a weak shadow, by allowing some of the opaque solution to be deposited on the surface of the calculus, is suggested in those cases in which there is obstruction to the catheter without any definite roentgen shadow, such as might happen in urate of soda stone.

T. Garfield Evans' report (An Interesting Case of Double Shadow Caused by One Stone in the Kidney, *Archives of Radiology and Electrotherapy*, July, 1919, xxiv, 53) is of value as indicating that a single stone, located in a much dilated pelvis, in a freely movable kidney, may give two shadows. This can happen, however, only where no compression is used and where the exposure is so long that during the observation the patient is permitted to breathe. Immobilization would undoubtedly prevent this error.

BONES AND JOINTS

Richard (*American Journal of Roentgenology*, Sept., 1919) in an excellent article, studies the association of pain in the lumbosacral region with congenital malformation of the transverse processes of the fifth lumbar vertebra.

Among the patients sent to the roentgen ray department with a clinical diagnosis of strain, relaxation or arthritis of sacro-iliac joints, or arthritis of hip, sciatica, lumbago or even possibly Pott's disease, he has noted the great preponderance of anomalies in the structure of the bones of the lumbosacral region, particularly of the transverse process of the fifth lumbar vertebra.

Of 60 patients complaining of pain in the lumbosacral region, only about 10 per cent did not present abnormalities. Of these, 60 per cent were slight or pronounced malformations of the transverse processes of the fifth lumbar vertebra. The author believes that in nearly all these cases the pain, local or radiating, was caused directly or indirectly by this malformation. Owing to the wide difference in extent of these malformations, they can be classified in four different groups, each case presenting one of several characteristics of a particular group.

First Group.—One or both transverse processes are longer and larger than normal; they may apparently be in contact (constant, or in certain movements only) with the sacrum and iliac bones. Their shape sometimes suggests a change directly traceable to this contact; or the formation of a bursa at the point of contact is indicated.

Second Group.—One or both fifth lumbar transverse processes are very markedly long or large and seem to have taken an oblique upward direction from this contact with the sacrum and iliac bones; the space between the lower border of the process and the upper border of the sacrum appears very narrow and sometimes it has entirely disappeared.

The two preceding groups are not so much true malformations of the transverse processes, as malposition of the bones of the pelvis; the sacrum is apparently situated very low between the iliac bones. This is more frequent in males than in females.

In plates which can be considered as showing a normal shadow, the upper surfaces of the fifth transverse processes are about on, or slightly below, the upper border of the crest of the iliac bone,

this position showing little change in different plates taken at a higher or lower angle. There must be at least an apparent distance of three-fourths of an inch between the lower borders of the processes and the upper surfaces of the sacrum, and between the ends of the processes and the borders of the iliac bones, respectively.

Third Group.—This group is represented by the very marked enlargement outward and downward of the fifth lumbar transverse processes which present a size two or three times that of the process on the opposite side, its shadow overlapping the shadow of the upper part of the iliac bone and sacrum, with sometimes the presence of a bursa, but no actual joint formation.

Fourth Group.—This group would include the malformation of one or both fifth lumbar transverse processes which are considerably larger than normal and united with the upper part of the sacrum by a true joint.

In all cases the vertebra bearing the malformed transverse process or processes is a true fifth lumbar, the sacrum showing the regular number of segments and the transverse process of the vertebra above presenting the characteristic aspect of the fourth lumbar.

The majority of the patients are males who complain of pain of a duration extending from a few days to several years; the period of their life when the pain is stated to have begun is rarely before their twenty-fifth year. Very few of them mention or recall a trauma or jerk preceding or starting the pain, and when there has been an accident, they often recall that they had felt some pain prior to it.

The clinical examination usually shows tenderness to pressure over the region of one or both sacro-iliac joints, limitation of motion of the lumbar spine with spasm and pain, the sharpest pain being encountered in movements of extension or hyperextension. There is often rigidity of the spine up to the middle dorsal region.

The patients also very often complain, even in repose, of pain in the lumbar and ischiatic regions, in the hip joints and different groups of muscles in the thighs and legs.

The pain is probably produced either:

(1) By compression of soft tissues, muscular or fibrous (ligaments) between the bony parts.

(2) By irritation and arthritis of normal or abnormally formed bursæ and joints.

(3) By the slow acting strain on ligaments when a very slight relaxation of the joints of this region is produced (these joints normally allowing only extremely limited movements).

(4) By pressure or tension due to the persistent malposition of the bones on different segments of the trunks of the nerves which emerge from the lateral foramen of the fifth lumbar vertebra, especially of the lumbosacral cord.

The presence of these anomalies also facilitates the production of slight traumatic displacements which leave behind them sprains; it also facilitates the anterior displacement of the fifth lumbar vertebra or spondylolisthesis, and is sometimes the primary cause of scoliosis.

The fact that the ossification and union of the segments of the sacrum are not complete before the twenty-fifth year, often later (the upper segment being the last one to be completely ossified) explains why these patients rarely suffer before this age.

In fact, until the ossification is nearly completed, real contact between a large fifth transverse process and the sacrum or ilium is not produced or the tissues which come in contact are not hard, and yield easily to pressure. The abnormal joint or bursa therefore is not formed. With the completion of ossification, if the pressure of the enlarged process is made on the sacrum, there may be a tendency to lateral tilting of the fifth lumbar and, in the upright position, a tendency to compensatory opposite tilting of the sacrum, which causes strain on both sacro-iliac joints and subsequent arthritis, this arthritis being generally more marked on the side opposite to the malformation.

If the pressure of the process is made on the iliac bone, it causes a direct strain, a stretching of the ligaments of the sacro-iliac joint at the same side with the subsequent arthritis on both sides. Arthritis is also generally more marked at the side opposite to the malformation.

If the pressure of the process is made on the iliac bone, it causes a direct strain, a stretching of the ligaments of the sacro-iliac joint at the same side with subsequent arthritis on both sides. Arthritis is also generally more marked at the side opposite to the malformation.

The anterior ramus of the fifth lumbar nerve runs over the upper part of the sacrum and narrowing, and, even in certain cases,

the apparent suppression by an enlarged fifth lumbar transverse process of the space between the transverse process and the sacrum, may cause a certain amount of compression of the nerve, or tension by lengthening its way downward; and because the development of the upper part of the sacrum is not complete before the twenty-sixth or thirtieth year, the pressure or tension is not made until full development is nearly reached, the pain having appeared insidiously.

How this malformation can facilitate spondylolisthesis, which gives the production of pains analogous to that above mentioned, is shown by the examination of the skeleton; the upper part of the sacrum (ala) at either side of its articular surface consists of two planes oblique anteriorly and downward; if, then, a movable part, as a very large fifth lumbar transverse process, makes a downward pressure on these sacral planes, it will obviously take an anterior downward direction, thus facilitating the forward displacement of the fifth lumbar, especially if there is already a predisposing affection of the vertebra, as a defective ossification of its foramen, or spondylolisthesis.

The malformation of a fifth lumbar transverse process may be the primary cause of scoliosis. Some scoliosis patients show a marked difference in the size of the transverse process of the fifth lumbar, this being associated with or without the presence of hemivertebrae, or a supernumerary vertebra. In some the lower lumbar vertebrae is rotated to such a degree as to render impossible a clear view of the fifth lumbar transverse processes.

When scoliosis is due to a marked inequality in the size of the fifth lumbar transverse process, the primary curvature has its convexity opposite to the side of the larger process, the secondary curvature being dorsal, always very much more pronounced, with convexity on the same side as the large process. The primary lumbar curvature often disappears before any corrective treatment has been undertaken. It is to be noted that in the cases where there are only four lumbar vertebrae, without anomalies of the upper part of the sacrum, the lateral processes of the last lumbar vertebra present the characteristics of the fourth lumbar transverse processes.

Upon reexamining the patients whose plates of the sacral region (without showing the whole lumbar spine) did not seem to show anything abnormal, but where the transverse processes of the last

lumbar vertebrae presented the characteristics of the fourth lumbar processes, we have found in all only four lumbar vertebrae. In these cases the sacrum shows always six or seven foramina instead of four or five as normal, the fifth lumbar contributing in its entirety to the formation of the sacrum. The pain of the patient bearing this abnormality was almost always found to be due to some other cause than an orthopedic affection.

When six lumbar vertebrae are found, the sacrum does not show a smaller number of lateral foraminae. These cases of six lumbar vertebrae are very rare, compared with those of four, the ratio being about one to ten.

Herman (Bone and Joint Lesions of Jaws with X-ray Findings in Twenty Cases, *American Journal of Roentgenology*, Sept., 1919) states that the diagnoses of these cases were made by the histories, by the clinical symptoms and manifestations, and by the demonstration of *Treponema pertenue* under the dark-field microscope in the cases in which an open lesion was present, and by a careful history of those without open lesions, so as to remove any doubt as to the diagnosis.

Twenty per cent of the cases of this group of patients, as they presented themselves for treatment, suffered from bone or joint lesions. These patients were persuaded to come to the Department Hospital, Manila, for x-ray examinations and treatment. A roentgenological survey of all the bones of the body was made of each case, regardless of whether or not the patient complained of pain in the part x-rayed. Subsequent roentgen ray plates were made, in order to follow the progress of the lesions under treatment.

In the majority of cases the lesions show as rarefied areas, irregularly oval or elliptical in shape with the long axis parallel to that of the bone in which the lesions are located. The size varies from the smallest discernible area to one that is 2 or 3 cms. in length. The rarefaction presents moderately well-defined borders separating it from the unaffected bone and varies in translucency from the slightest differentiation of unnatural transparency to one simulating a perforation. Most of the lesions appear to originate in the interior of the bone, while a number can be seen as small excavations on its outer surface. When the lesion is on the surface of the bone, the periosteum is usually destroyed, but occasionally the cortex shows thickening, and the periosteum is separated from the bone. In 2

cases of this series there is a general thinning of the cortex of the bone and a loss of the cancellous tissue appearance. About 2 per cent of the cases show a nodular type of lesion, evidenced by swelling over the surface of the bone, with a localized thickening of the cortex, which sooner or later in the course of the disease shows rarefaction in its center.

With the exception of the 2 per cent of cases showing as a swelling over the surface of the bone, the roentgen ray picture is different from the bone lesion of syphilis, in that: (1) The periosteal proliferation is absent, and (2) the thickening of the cortex of the bone is absent. Also, in the 2 per cent of cases where thickening of the cortex is present, the thickening remains localized, does not tend to extend along the whole length of the bone, and sooner or later shows rarefaction in the center of the lesion.

The bone lesion of yaws may simulate (1) tuberculous or septic central abscess, (2) gumma, (3) hydatid cyst, (4) benign cyst, (5) fibrous osteitis, (6) enchondroma, (7) endothelioma, (8) secondary carcinoma, (9) myeloma, and (10) sarcoma. The differential diagnosis can be made only by combining the radiographic appearances with all clinical data, including the history, physical signs, and evidence of disease or tumor in other parts of the body.

Summarizing the findings in Table I, it is seen that in 20 cases of bone lesion in yaws:

(1) The shaft of the bone is the most frequent location of the lesion and shows involvement in 80 per cent of the cases.

(2) The epiphyses or articular surfaces are involved in 20 per cent of the cases.

(3) The tibia is the bone most frequently involved (40 per cent of this series).

(4) The order of frequency of occurrence of the lesions in other bones is as follows:

(a) Tarsal bones, 40 per cent (75 per cent of these lesions occur in the os calcis.

(b) Fibula, 35 per cent.

(c) Phalanges of feet and hands, each 30 per cent.

(d) Metatarsal bones, metacarpal bones, and radius, each 20 per cent.

(e) Patella and humerus, each 15 per cent.

(f) Femur and ulna, each 10 per cent.

(g) Carpal bones, ribs, sternum, and pelvic bones, each 5 per cent.

(h) In the bones not mentioned no lesions were found.

(5) There is no constant relation of the location of the external lesion to the bone lesion.

(6) The order of frequency of occurrence of the lesions in the joints is as follows: knee, finger, ankle and elbow.

(7) The lesions are multiple in 75 per cent of the cases, the greatest number being 113.

(8) The time between the appearance of the primary lesion and bone lesions varies from six months to nine years, with an average of two and eight-tenths years.

Conclusions.—(1) The majority of cases of yaws with bone and joint involvement shows characteristic roentgen ray lesions.

(2) The radiograph can be used as an additional means of differentiating yaws from syphilis when there is involvement of the bone, and as a confirmation of the evidence that the two diseases are distinct.

(3) The pains complained of in the joints are due, in most part, to the presence of the lesions on the articular surfaces.

(4) Twenty per cent of patients infected with yaws develop bone or joint lesions when not treated.

(5) Regeneration of the bone is complete at the site of the lesion, if the destruction has not been too great.

Bowman (Coccidioidal Granuloma, *American Journal of Roentgenology*, Nov., 1919) states that coccidioidal granuloma is a definite, acute, subacute or chronic disease due to an infection by a parasitic organism or mold-like growth called by Ophüls the *Oidium Coccidioides*. It is sometimes called the California disease owing to the fact that all of the cases reported, with but three exceptions, have been observed in patients who either lived in or visited that state before contracting the disease.

The *oidium coccidioides* occurs as a spherical body varying in size from 7 to 30 microns (0.007 to 0.02 mm.) in diameter. It consists of an irregular protoplasmic body with a double contoured, highly refractile surrounding membrane or capsule, and they multiply by sporulation. The fungus grows on all types of media. The mode of infection in the human is unknown. The pathology so far described, both grossly and histologically, especially in the viscera,

has been practically identical with that of tuberculosis and a differential diagnosis is made only by the isolation of the organism.

Rixford states that in bone conditions there is extensive destruction with formation of tubercle-like nodules and large giant cell formations of the Langhans' type. In appearance it resembles both macro- and microscopically genuine tuberculosis. However, it is somewhat more acute than in tuberculosis. The tendency of the suppurative process to extend along the tendons and muscle sheaths to a considerable distance from the joint is striking.

A positive diagnosis can be made only upon the finding of the organism in the pus or tissues. This can easily be done by mixing a drop of pus with a drop of 10 per cent sodium hydrate on a slide with a cover slip. After a few minutes, when the pus cells have been destroyed, the parasites, which are much more resistant, are easily found.

The roentgen examination of the bones shows small irregular areas of necrosis involving the articular surface of the bones, and slightly irregular, fuzzy thickening of the periosteum, i. e., the typical picture of tuberculosis.

In the lungs there are numerous small semi-gray nodules, resembling tubercles. Larger nodules have caseous centers.

The frequency with which Evans (Non-Traumatic Epiphyseal Separations, *American Journal of Roentgenology*, Nov., 1919) encountered both recent and old epiphyseal separations of the hip joint without a history of trauma leads him to study the literature pertaining to epiphyseal separations and juxtaepiphyseal fractures.

All of the cases observed with active symptoms were in patients of the adolescent period. Invariably these patients were overweight and oversized for their age. Two occurred in girls and 7 in boys. He reports a typical case. Epiphyseal separations are much more common in children than fractures of the neck of the femur.

The type of cases which the author points out are those in which as far as can be determined, trauma is not the etiological factor in the pathology. The etiological factor in epiphyseal separations has not been determined, but it is the manifestation of some general condition, probably associated with disturbed internal secretion. As previously stated, all of the active cases occurred at the age of puberty and there was evidence of abnormal internal secretion, since the patients were all females and showed excessive development.

The fact that all our separations involve the hip joint only would offer no objection to the explanation for the condition, because the relations of the diaphysis and epiphysis at the head of the femur are peculiarly favorable to slipping, providing that there is a disturbance in the weight of the patient and in the strength of the parts.

The diagnosis of the condition is based, then, upon the history of pain in the hip joint, and, in some cases, upon the pain referred to the knee. The onset may be rapid or gradual, and the progress of the case may be acute, or in other cases interrupted by periods during which no symptoms whatever present themselves.

Stereoscopic plates made of the affected hip show a general loss of lime salts, and more particularly a disturbance in the epiphyseal line, with slipping. The deformity is best shown by extreme external rotation of the thigh when the plates are made.

The severity of the symptoms and the extent of the deformity depend entirely, of course, upon the degree of separation. There is a degree of separation which is productive of symptoms but which cannot be demonstrated by the ordinary roentgen plate, and, too, the degree of separation may be so slight that while it can be demonstrated upon the plate, there is no deformity evident upon physical examination. The cases of extreme or complete separation offer no difficulty in diagnosis, inasmuch as there is present a shortening and rotation of the limb, and limitation of movements of the affected joint.

From the roentgen examination alone, we cannot distinguish between the epiphyseal separation which accompanies a general condition and the separation which results directly from a trauma. The condition is a progressive one, even in the case of the traumatic type of separation. It is this point which probably leads its supporters to the view that all separations result from trauma, they claiming that the original trauma may be overlooked. The writer is of the opinion that this condition should not be confused with Perthe's disease, which was fully described in an article by Dr. Frederick C. Kidner, of Detroit.

The prognosis in the condition depends, then, in the first place, entirely upon an early diagnosis, and upon the treatment adopted following the demonstration of an epiphyseal separation. In slight separations a good result will be obtained if the part is put up in a plaster cast with strong flexion and external rotation of the thigh. The period of fixation should extend over four or six months. In

the cases of extreme separation, when the deformity has existed only a relatively brief time, a great improvement in the relations of the diaphysis and epiphysis can be obtained by proper manipulation.

Legg's disease (L. W. Ely, *Annals of Surgery*, Jan., 1919, pp. 47-51, with 16 radiograms), also called Perthes' disease, was, according to the author, described by Legg three years before Perthes, and should rather be associated with the name of Legg.

The typical radiographic appearance consists in:—(1) A flattening, broadening and sometimes an apparent displacement of the epiphysis laterally into one or more divisions, and an irregularity of ossification.

(2) An irregularity or even segmentation of the cartilage between the epiphysis and the neck.

(3) Loss of bony structure in the neck, especially of the proximal and lateral part.

(4) Irregularity in contour of the upper part of the femur neck.

(5) Distortion of the head.

(6) Enlargement of the trochanter (occasionally).

(7) Irregularity of the acetabulum—not characteristic.

Though the radiographic changes are marked, the clinical symptoms and physical signs are of comparative insignificance. The disease may be mistaken for tuberculosis. The latter shows radiographically more involvement on the shaft side of the epiphyseal line and less involvement in the head of the bone; the clinical picture is also different.

T. S. P. Strangeways (Morbid Anatomy and Histology of Rheumatoid Arthritis, *Lancet*, Nov., 9, 1918, p. 628) says that changes in bones in such cases as the title implies are as follows:—The articular bone may show atrophy, rarefaction, resorption or erosion. The superficial osseous trabeculae underlying those portions of the articular cartilage in which advanced atrophy, fibrillation, or complete erosion has occurred may show increase in size and density, because of the formation of new bone. This formation is induced by continued use of the limb, notwithstanding the joint changes. The amount of the new bone formed appears to depend upon the reaction of the tissues to pressure, and this increases in proportion to the weight and friction on the affected area. In those instances in which the cartilage is absent and the superficial bone exposed, this process results in a polishing of the superficial surface of the

sclerosed bone. Associated with this increased density of the osseous trabeculae, minute fractures are often seen, these are probably of traumatic origin. In the neighborhood of these fractures there is generally callous formation, with a combined process of resorption and repair around the injured area. These changes are characteristic of osteoarthritis, but are not common in rheumatoid arthritis.

When the inflammatory changes are confined to the synovial membrane, active changes are not observed in the bone, marrow or osseous trabeculae, but there is often the atrophy or disuse of the osseous trabeculae in the neighborhood of the affected point.

When an inflammatory process attacks the articular cartilage or bone of a joint, inflammatory changes are usually strictly confined to the quite superficial cancellous spaces and superficial osseous trabeculae in isolated areas. The process is slowly progressive with resorption of bone, accompanied by new formation of bone in the neighborhood. When the process is more active, proliferative changes are found in the bone marrow, with congested blood-vessels, osteoclasts and inflammatory cells. This process often leads to erosion of the articular cartilage and the underlying bone; with very rare exceptions the formation of new bone can be seen taking place in the affected area. In some cases the resorption of bone is more rapid than the new formation; in others formation of new bone is in excess.

The development of new bone in a damaged joint may take place (*a*) in the articular cartilage, (*b*) in altered articular cartilage, (*c*) in the zone of calcified cartilage, (*d*) on the edge of preëxisting bone trabeculae, (*e*) in inflammatory connective tissue in the cancellous spaces, (*f*) in fibrous adhesions.

In rheumatoid arthritis the development of new bone on the edges of preëxisting bone trabeculae is usually accompanied by proliferative changes in the marrow, followed by resorption of bone in the neighborhood of the new formation. The two processes occur simultaneously, and appear to depend upon the irritant, which produces the increased blood supply and causes resorption, and to depend upon pressure on the affected area from use of the limb, which causes the development of new bone.

Where new bone develops in inflammatory tissue which has replaced the marrow and osseous trabeculae, it appears to be formed from connective tissue cells in this inflammatory tissue. When os-

seous ankylosis occurs, the new bone is formed either in ankylosed cartilage or in the fibrous tissue which has already produced fibrous ankylosis. When ankylosis occurs between the two zones of calcified cartilage, the condition finally becomes a true bone ankylosis.

A. B. Moore (A Roentgenologic Study of Metastatic Malignancy of the Bones, *American Journal of Roentgenology*, Dec., 1919) states that there are Fraenkel, von Recklinghausen and others who have described two types of secondary bone metastases, the osteoclastic and the osteoplastic. The osteoclastic form is characterized by marked lacunar absorption and destruction of bone, causing an extreme porosis of the osseous tissue. The osteoplastic form is characterized also by lacunar absorption, but there is a marked thickening of the bone due to the collection of the malignant cells, and from a secondary calcification around the malignant process. The two types occur simultaneously in the same bone.

The osteoclastic form is characterized in the roentgenogram by an extreme decrease in density, the bone having a honey-combed appearance that is typical.

The osteoplastic form is characterized in the roentgenogram by an irregular increase in bone density, the bones having a chalky appearance without cortical or periosteal thickening. The osteoplastic form is most common in cases of carcinoma of the prostate, while the osteoclastic is most common as a secondary manifestation of great malignancy. Metastasis occurs by blood or by lymph-stream.

The bone is primarily involved in its marrow and the cortex is involved through the foramen.

The most common sources of bone metastasis are the breast, thyroid, prostate and kidney. In the author's series the primary growth was as follows:

	<i>Cases</i>
Breast	36
Prostate	11
Kidney	7
Thyroid	2
Vulva	1
Sigmoid	1
Uterus	1
Abdominal mass of unknown nature.....	3
Primary source not discovered.....	3

The high percentage of metastases which are secondary to malignancy of the breast and prostate is probably due to the blood and lymph supply and to the slow growing nature of these tumors.

Carcinoma of the breast is unquestionably the most common primary source of bone metastasis, but if one considers the high percentage of carcinomas that are located in the breast, the height of this percentage will be materially reduced.

Malignant adenomas of the thyroid are very prone to give rise to bone metastasis, while they are very rare in cases of scirrhus cancer of the thyroid.

In all probability the extreme rareness of bone metastasis in cases of cancer of the stomach is due to the fact that malignant conditions of the stomach speedily produce death unless immediate treatment is given. Bony metastasis of all types of malignancy gives the same roentgen appearance, thus emphasizing the fallacy of attempting a cellular diagnosis by the roentgenogram. The metastases in the author's series were as follows:

	<i>Cases</i>
Spine	22
Pelvis	11
Femur	9
Ribs	6
Humerus	6
Clavicle	1
Sternum	1
Radius	3
Skull	3
Tibia	2
Bones of hand.....	1

The spine is the most common site of bone metastases, and any vertebra from the atlas to the sacrum may be involved.

A review of the clinical history of the author's series shows that the average age of the patients was fifty years; 42 were females and 23 were males; the average time that had elapsed since the primary growth was discovered was two and one-half years, the extremes being nine years in one case and six months in another. The most common symptoms was pain, this being noted in 57 per cent of the cases. The pain is rather characteristic and resembles that of neuritis; it is almost always constant and is referred along the course of

the nerve trunks. The pain is always increased by motion, but the degree of the increase is in direct proportion to the proximity of a joint to the area involved. It has been remarkable that in spite of extensive areas of involvement, the patient was able to move without apparent inconvenience; this is especially true in cases with metastases into the pelvic bones. Spontaneous fracture is a fairly common occurrence in cases of bone metastasis and may be the first index of its presence. The spontaneous fractures may unite without delay. Pulmonary and bone metastasis rarely occur together.

Conclusions.—(1) Bone metastases may result from malignancy of almost any organ, but the most common foci are the breast and prostate.

(2) Bone metastases are uncommon in malignancy of the thyroid.

(3) Bone and pulmonary metastases are rarely associated.

(4) The most common symptom complained of is pain, which is fairly typical and should be regarded as an indication for a roentgen examination.

(5) The roentgen appearance is characteristic, and a thorough examination should be made by the *x-ray* in all cases in which there is any suspicion of bone metastasis.

(To be continued)

BARDET, G., AND BARDET, D.: **Contribution to the Study of the Internal Use of Radium and Emanation.** *Bulletins de la Societe de Electro-therapie*, June, 1919, p. 145.

The authors relate observations of patients treated by intravenous injections of bromure of radium in a single massive dose of 100 micrograms.

Case 1 was that of a woman suffering from a uterine septicemia with a temperature of 40° C. (104° F.) and in a generally serious condition. A curettage and intravenous injection of electrargol had no results. There was a cure eight days after injection of radium bromure. Case 2 was one of paratyphoid fever in hypertoxic form. Cure was affected nine days after injection. Case 3 showed a negative result in tuberculosis of acute granular type. The injection was made *in extremis* to satisfy those concerned.

E. J. SKINNER.

HART, DE K.: **Two Important Roentgenoscopic Signs in Pyloric Stenosis.** Proceedings of the *Societe de medecine de Paris*, March 27, 1920; reported in *La Presse medicale*, April, 1920, xxviii, No. 21, p. 208.

The author has noted two important roentgenoscopic signs in pyloric stenosis which permit him to establish a diagnosis before the clinical or roentgenographic signs are definite:

(1) A peculiar malformation of the stomach shadow, resembling a German pipe.

(2) An irregular rhythmical, jerky oscillation of the lever of the contained fluid, synchronous with the movements of respiration, but of greater amplitude. This is an indication of an attempt at expulsion of the fluid by the organism.

The first sign is not a positive one. The second, according to the author, is a definite indication of pyloric stenosis.

S. KAHN.

OPPERT: **Some Points in the Technic of Radium Therapy.** *Bulletin et Memoires de la Societe de Medecine de Paris*, Dec. 27, 1919.

Incontestable successes may be obtained in the treatment of cancer by radium on condition that its use be limited to very definitely selected cases. Preparation of the capillary tubes for emanation is delicate and demands excellent physicists and is dangerous for physicians who do not protect themselves sufficiently. It is dangerous to go beyond a certain dose: 250 milligrams in vagino-uterine work in the growth or in the cervix. Otherwise there is danger of mortal uterine perforations or of radio-therapeutic shock (vomiting, fever, blood changes, etc.) not forgetting local accidents such as rectitis and vaginitis.

E. J. SKINNER.

SECTION ON NEUROLOGY AND PSYCHIATRY

RODRIGUEZ, B.: **Our Personal Results in Intraspinal Treatment of Neurosyphilis** (Nos resultats personnels dans le traitement intrarachidien des neurosyphilis). *Reveu Neurologique*, 1920, A. xxvii, No. 5, p. 439.

In neurosyphilis, the author says the plain fact is often overlooked in scientific cases, that there is an underlying general disease. The author has therefore been in a habit of giving, besides the intraspinal, mercurialized and neosalvarsanized serum injections, a general treatment of gray ointment and potassium iodid.

The serum employed is mercurialized or neosalvarsanized *in vitro*. For mercurialization of the sera the sublimate is employed and not the benzoate, as the latter is less powerful. Three kinds are used: The autogenous, the homogenous and the heterogenous horse-serum. They are generally given in a concentrated form, viz: 10 c. c. (2.71 fluidrams) of serum and 0.005 grain of sublimate. Sometimes the diluted serum of Byrnes is given, viz. 10 c. c. serum and 1 c. c. (16 minims) distilled water with from 0.0013 to 0.0026 grain of sublimate and 17 c. c. (4.60 fluidrams) of physiologic salt solution. The sera are kept in ampules containing 10 c. c. (2.71 fluidrams) of the concentrated, and 30 c. c. (1 fluidounce) of the diluted serum.

The sera treated with neosalvarsan (novarsenbenzol Billon) are used in the concentrated state, viz. 10 c. c. (2.71 fluidrams) to 0.005 grain of novarsenbenzol, also autogenous, homogenous and heterogenous. It is then kept in ampules containing 10 c. c.

Tests of the cephalospinal fluid are made in a systematic manner according to Wassermann, Nonne-Appelt and Lange; in difficult

eases the methods of Noguchi-Moore, or that of Emmanuel or of Boveri, a lymphocyte count under the Nageotte cell, and the albumin test in the radio-albumino metre of Sicard, are employed.

The reactions after the injections are various. The only important ones are headache, pain in the back and lower limbs, insomnia, restlessness, fever up to 39° C. (102.2° F.), gastric and intestinal symptoms, such as nausea, vomiting, constipation, and sometimes retention of urine. These symptoms are treated generally by milk diet, iced drinks, purgatives, narcotics, for instance, pantopon, lumbar puncture, etc. Usually the dose given are 1.5, 2, 3, 4, 5 mgs. (.0231, .0308, .0462, .0616, .077 grain) of the sublimated sera, or 2.5, 3, 5 mgs. (.0385, .0462, .0770 grain) of the novarsenobenzol.

Among those treated in the above way there were 5 with general paralysis, 2 with tabes, 1 with cerebral, 1 with cerebro-medullary, 4 with medullary, and 1 with hereditary syphilis, the latter showing a lesion in the inner ear. The methods ought to be enforced rigorously, and strong doses given. The results of intraspinal treatment of general paralysis and tabes were not as satisfactory as those of other neurosyphilitic diseases.

SICARD, J. A.: **Treatment of Syphilis of the Nervous System.** *La Presse medicale*, May 8, 1920, xxviii, No. 29, pp. 281-3.

Instead of employing the commonly accepted method of treating syphilis by large doses of salvarsan at long intervals, the authors experimented with small doses, very frequently repeated. This procedure has given remarkable results in the treatment of tabes, syphilitic hemiplegia and paraplegia, and even general paresis. Besides favorably modifying the syphilitic process generally, this method of treatment provokes, in certain cases, reactions of the peripheral nervous system which are beneficial for the patients. The technic Sicard employs is simple. The arsenic is given either subcutaneously or intravenously.

(1) *Subcutaneous*.—The dose never exceeds 0.15 gram (2.315 grains) dissolved in 1 c. c. (16 minims) of distilled water. The site of election is the upper third of the thigh, superficial to the aponeuro-muscular tissue. Daily injections may be given here without any local reactions. The amount of salvarsan used annually in each case is:

(a) For general paresis—28 to 30 grams (432.04 to 462.0 grains).

(b) For progressive tabes—20 to 25 grams (308.6 to 385.75 grains) (two subcutaneous injections of 0.15 gram and 1 intravenous injection of 0.3 gram weekly).

(c) For spasmodic paraplegia—20 to 25 grams. (In these cases, daily intravenous injections of 0.15 gram gives excellent results).

(2) *Intravenous*.—The same annual dose is used. Injections of 0.15 gram (2.315 grains) of the arsenical preparations used are given daily or every other day. These were novarsenobenzol, *sanar*, and *galyl*. Mercurials and iodids were used.

By this method the author has never seen a *nitritoid* reaction, nor any of the congestive or vasomotor phenomena occasionally seen when the usual large doses are given. The following four reactions were noted during the course of treatment:

(1) *Erythematous Reactions*.—These usually occur at the site of injection. This reaction may appear at the beginning of the treatment, or near its close. When it appears late, it is an evidence of arsenical impregnation of the tissues and denotes a necessity for cessation of treatment.

(2) *Loss of Achilles' Reflex*.—This may be noted from 4 to 6 weeks after the beginning of the treatment. The excitability of the posterior muscles of the leg also is diminished. This affinity of arsenic at the beginning of the treatment for the neuro-musculo-tendinous system of the posterior aspect of the leg is important. It can be employed to advantage therefore in the treatment of spastic troubles of the legs, especially if these be luetic in origin.

(3) *Late Icterus*.—This is probably due to the arsenic itself, and not to a hepatic syphilis.

(4) *Slight Transitory Azotemia*.—A slight increase in the blood nitrogen content is often seen when 7 or 8 grams (108.01 or 123.46 grains) of novarsenobenzol have been injected. This rapidly disappears, if treatment is discontinued.

Sicard has never seen any sensory, visual or auditory disturbances resulting from his very intensive method of treatment. He feels that there is greater security and less danger in giving small doses frequently than larger ones at long intervals.

S. KAHN.

TAYLOR, A. S.: **Abdominal Neurasthenia.** *Archives of Neurology and Psychiatry*, 1920, iv, No. 6, p. 638.

The author, giving the history of a few cases, shows the necessity of making a detailed physical examination of all patients in whom symptoms relating to the digestive apparatus demonstrate the clinical picture.

Usually, after one or two test-meals and examination of the stools, the case-history taking is not pursued further, a diagnosis of "abdominal neurasthenia" being made. Stomachics, sedatives, cathartics, irrigations, rest cures have been given for months or years with little or no improvement.

On exact physical manual examination, especially of the abdomen, made in addition to the examination of the gastric contents, which rarely gives any information, except as to the presence or absence of retention, and the roentgen ray examination, another diagnosis may be arrived at. The findings must be verified, amplified, or modified by the roentgen series. Such a series, to be of any value, must be made by a man skilled in determining the time of exposure, attitudes and numbers of plates to be taken, and also in interpreting the plates and the results of fluoroscopy, which is one of the essential elements of a proper roentgen examination.

Every neurasthenic should be carefully examined as to his digestive apparatus. In many cases the clinical picture has shown, besides the nervous symptoms, abdominal pain and digestive disturbances which have finally become predominating. In the author's cases, the patient gave a history of: (1) abdominal pain and digestive disturbances, such as flatulence with or without constipation; (2) a suddenly or slowly developing neurasthenia—in one case of an idiopathic nature; and (3) lack of mental balance, and probably disturbance of the endocrine system. In one case a profound neurasthenic condition had followed a simple herniotomy.

The nerve exhaustion was apparently secondary to the absorption of toxins from the digestive canal, and the author holds that the formation of toxins largely resulted from mechanical interference with the normal motility of the digestive canal.

On surgical examination a high and a low obstruction of the intestines was found in each of the cases examined. "The high obstruction resulted from kinking and compression of the duodenum by

a Harris band from gall-bladder to duodenum" in 3 of the cases examined. "The low obstruction in each case resulted from constriction and angulation of the ascending colon and hepatic flexure by a Jackson's membrane". In each case the appendix was definitely pathologic.

The loosening of adhesions in the colon, Jackson's membrane and duodenum, and the removing of the appendix, brought about in these cases a decided change, and after some time a general improvement of health of nerves and digestion.

Rêxo, P. H.: **Psychosis During Involution** (Psychose de involuncao). *Brazil Medico*, Dec. 11, 1920, xxxiv, No. 50, p. 821.

From the ages of forty-five to sixty years symptoms of melancholia are apt to occur with a depressive and perturbed state of mind. A wearing off of the brain seems to set in at the beginning of old age and involution.

In women this time is clearly marked, but in men a similar clinical psychic condition is noticed and has been discussed for the last ten years. Mendel has observed 30 cases in men of from fifty to fifty-four years of age (*Neurologisches Centralblatt*, 1910). These patients suffered from anxiety, physical debility, exaggerated emotionability, spells of perspiring, tachycardia, vertigo, headache, paresthesias, somnolence during the day, lack of sexual appetite and anorexia.

These symptoms may resemble arteriosclerosis, and may seem to represent a cerebral type of this disease. They probably are due to the disturbed testicular function.

Processes during menopause may constitute a retention of toxic products by the vasomotor centers, resulting in cerebral ischemia. Persons, naturally calm, may show extreme irritability and excitability; they are usually querulous and argue about everything, are afflicted with vertigo, and change from pallor to high color. The head generally feels heavy, cephalgia, sexual excitability, and marked melancholia being in the foreground.

These manifestations are accompanied by arterial hypertension, dermatoses, tachycardia, gastralgia, hemorrhagia and rheumatic pains. Some patients go on to presenile psychoses, which must be distinguished from cerebral arteriosclerosis, senile dementia and neuro-

syphilis. In an older edition Kraepelin treats involutionary psychosis as a distinct entity. Later on, in 1913, he puts it under the head of manicodepressive insanity. Melancholia and anxiety may go on to catatonia, depression to mental debility, over-excitability to paranoid types, to delirium and presenile wreckage.

Hübner in his fifty years' experience saw 21 cases of menancholia and 2 of mania.

Cerebral anemia is the cause of this melancholia. This state comes on by degrees, and a primary transient dark mood will be seen to persist.

Self accusations are common, the fear of bringing the family into trouble, the idea of being chastised by God, etc. Memory grows short. Hypochondria, ideas of persecution, and visual and auditory ideas of suicide exist. Consciousness and orientation are normal.

Melancholia may exist only in the form of presentiment or pessimism.

The author gives the following classification of these conditions of involutionary psychosis:

Maniac state, simple, delirient; melancholia state; anxious; confused state; catatonic state; paranoid state.

The treatment of these disorders is opotherapeutic. Ovarian and testicular extracts are used. Injections of sodium neucelinate may prove advantageous. The best method consists of the use of cerebral extract. Iodin may be used provisionally.

It is not easy to make an involutionary psychosis disappear entirely, but by treating it, one may prevent it from advancing to senile dementia.

HERTZLER, A. E.: Clinical Surgery by Case Histories. *C. V. Mosby Co., St. Louis, 1921, Vol. I, pp. 147-148.*

A housewife, aged 46, came to the hospital because of a tumor of the upper jaw. She had observed the formation of the tumor on her gums for four years. It had not caused any pain, neither had it bled, but its size began to annoy her. She had no trouble with any of her teeth. Examination showed a bluish-red tumor the size of a walnut occupying the external surface of the alveoli corresponding to the incisor and canine teeth. The tumor was

smooth and covered everywhere with mucosa. It was constricted at its base and could be moved about. Its size, consistency and covering of mucosa identified it as an epulis.

The gingival mucosa was cut through to the bone both externally and internally, well away from the base of the tumor. The alveolar process, together with the incisor teeth, was removed with a large cutting forceps. The exposed bone was cauterized with iodine, and the wound packed to control oozing from the bone. The operation was done under local anesthesia. The tumor was a giant-celled sarcoma. The wound healed over and has remained a smooth scar.

Had the patient been more subservient to treatment, the author would have cut the tumor from the bone with the knife blade cautery, extracted the tooth and then have cauterized the socket. This would have left an alveolar border which, with a bridge across the toothless space, would have left no deformity.

The author says epuloids with a broad base of attachment along the alveolar process are more malignant and do not lend themselves to such conservative treatment. Fortunately, they are usually situated farther back, and the removal of the alveolar process does not cause so much deformity.

HOUSE, S. J.: **Hemorrhagic Meningoencephalitis in Anthrax: A Report of Three Cases.** *The Journal of Infectious Diseases*, Dec., 1920, xxvii, No. 6, p. 513.

Although localization of anthrax bacilli in the brain is relatively common in anthrax, the cerebral changes produced are as yet undescribed in American literature. The author reports 3 cases and complete autopsy findings. In only 1 was cerebral involvement suspected before death. After securing the records of 45 cases in the literature, the author states that it seems reasonable that many cases go unrecognized. In an effort to eliminate such a possibility, a careful microscopical and bacteriologic study should be made of every bloody spinal fluid, provided that one is certain that the blood is not a contamination; especially should this be done if there are symptoms of cerebral irritation. At necropsy these cases are easily recognized by the soft, red, viscid brain, especially if there is a history of an acute illness not resulting from trauma; and there may be

one of two types of gross changes, either the brain with the characteristic intracerebral hemorrhages or the brain with blood only in the membranes. On account of the large quantity of blood which is sometimes present it would be easy for one who had not seen such brains to attribute the cause to trauma, but this may be avoided by recognizing the inflammatory quality of the changes and by checking up with stained smears of the exudate. The lesions in the brain of anthrax are essentially extravascular, meningo-encephalitic and the acute hemorrhagic non purulent nature of the inflammation with destruction of tissue by edema is similar to that produced by anthrax in other places of the body. With suitable stains large numbers of bacilli may be found in these lesions. The infection of the brain is by two routes, lymphogenous and hematogenous. In 1 of the 3 cases the infection was evidently by the hematogenous routes because (1) the primary focus was so far removed (intestine), and (2) because of the finding of small bacillus-containing foci of edema and dissection along the vasa vasorum of the leptomeningeal vessels.

M. M. BANOWITCH.

PARHON, J.: **Cardiorespiratory Correlations in Neuropathology** (Correlation Cardio-Respiratoire dans le Neuropathologie). *L'Encephale*, March, 1920, xv, p. 185.

This investigator, one of the most gifted Roumanian students of neuropathology, has offered an interesting series of observations concerning a number of so-called neurotic disturbances noted in cardiopathies and pneumopathies. Studying the physics of inspiration he comments upon the influence of the thoracic vacuum upon the blood volume of the brain and the general venous dynamics. Incomplete inspiration has a tendency then to give rise to a sense of oppression, or air hunger, a passive venous congestion and an increase in the intracranial pressure. From these disturbances Parhon would trace the origin of certain sensations, muscular tremors, and various head pains of the migraine type. One patient studied by him in particular brought out some of these facts quite prominently. Following a severe bronchopneumonia of infancy the patient had a marked respiratory insufficiency. Then followed an attack of scarlatine, with a cardiopathy. Later at puberty he devel-

oped marked anxiety attacks, which were at times accompanied by fascicular tremors of the quadriceps, masseters, orbicularis oris and biceps, which at times were almost like clonic spasms. Parhon now goes on to develop the thesis of a purely somatic origin for a number of neurotic phenomena, forgetting, we hold, by reason of the obvious presence of mechanical factors, that even the highest integrative functions of the human machine still must function. Bodily symptoms seen as compensatory efforts to maintain psychical [social] integrity is overlooked by this otherwise masterly study. What MacDougall calls the "gregarious instinct", which is one of the strongest derivatives of the more fundamental mating sex components, functions unconsciously to keep mankind socially integrated. There is a very powerful egotistic and regressive urge on the part of the somatically wounded to break the bonds of this gregarious factor—this if successful would result either in suicide, complete or partial [drugs, alcohol, etc.] or in a dissociation of the personality [mental disease]. Opposing trends therefore come to the rescue of the individual and force concentration of interest [libido in the Freudian sense] upon the individual's bodily functions. This gives rise to compromise reactions which discharge the energy through physical channels, somatic as well as symbolic. This, we believe, is a better explanation than the author's anoxemia, cerebral hemorrhages, etc. There is no denying the somatic factors, but these are only a part of the complicated mechanism of human life. That which makes life human is the presence of the symbolic, hence the importance of understanding how such a partial instinct as the gregarious instinct is kept functioning for the benefit of the individual and for the socius. Without a society there could be no human life and no evolution to possible higher types.

S. E. JELLIFFE.

NETTER, A.: **Contagiousness of Lethargic Encephalitis** (Contagiosité de l'encephalite lethargique). *Bulletin de l'Academie de Medecine*, Paris, April, 27, 1920, p. 373.

The author presents a very extensive study regarding the contagiousness of lethargic encephalitis. The article contains several case histories, the most instructive being the case of familial epidemic

as the result of one of the members of the family becoming infected. The conclusions drawn by Netter follow:

Lethargic encephalitis is contagious without any doubt. Saliva is very probably the carrier of contagion. On account of the long persistence of the virus in the nervous centers an infected person will be able to transmit the disease during convalescence. It is safe to admit that the disease can be transmitted by a person affected with a latent form of it and also by a healthy person who has taken care of an infected case. Thus the importance of detecting all latent cases or cases suspected of being carriers is evident. The persons in direct contact with the patients must be instructed as to the possibility of direct or indirect contagion. It is impossible for the present to try to isolate this kind of patients, as most of the time they are isolated cases and precautions are most of the time neglected at the beginning.

C. F. ARROYO.

DOTTER, C.: **Hyperglycorachia in Epidemic Encephalitis** (L'hyperglycoreachie dans l'encephalite epidemique). *Bulletin de L'Academie de Medecine*, Feb. 24, March 2, 1920, Paris, Nos. 8, 9, 10, p. 203.

The author reports a case of epidemic encephalitis in which the amount of sugar reached the abnormal figure of 0.85 grams to the liter. This fact permitted him to make the diagnosis of encephalitis. He has observed this hyperglycorachia in another case affected with the same disease. Other physicians have called attention to this fact. Especially remarkable was a case reported by Pierre Marie in which the analysis made by Mestrezat gave the high figure of 0.94 grams of glucose to the liter.

The author explains this as being due to a certain degree of hyperglycemia, caused by the lesion in the floor of the fourth ventricle. The fact is worth consideration, because it differentiates epidemic encephalitis from acute meningitis and tuberculous meningitis, both of which are very similar to it, especially on account of the rachidian albuminosis and lymphocytosis common to all of them. We know, since the work of Mestrezat that in meningitis there is a decrease and even a complete disappearance of sugar from the spinal fluid.

Dopter says that although hyperglycorachia is common to many diseases and not always present in epidemic encephalitis, it will serve when present to differentiate the later from meningitis, if the Wassermann reaction is negative.

C. F. ARROYO.

ENGELBACH, W.: **Classification of Disorders of the Hypophysis.** *Endocrinology*, iv, No. 3, p. 347.

The classification is based upon the "hormonic" signs of hypophyseal disease, and groups the disorders into three divisions depending upon whether one or both of the lobes were involved: (1) *Anterior Lobe Disorders*; (2) *Posterior Lobe Disorders*; and (3) *Bilobar Disorders*. Each lobar division is subdivided into the activities prevailing, the anterior and posterior lobe disorders into states of: (a) Hypoactivity and (b) hyperactivity, and the bilobar group in addition to (a) and (b) as above, into (c) heteroactivity. These activities are redivided into (1) preadolescent and (2) post-adolescent varieties dependent upon the age of incidence of the abnormal secretory state, and a final division of the age incidence into: (a) a-neoplastic, and (b) neoplastic varieties. It is the hope of the writer that the conception of a heteroactive bilobar division will be the means of disentangling many of the so-called dyspituitarisms and dystrophies which have been so ill-defined that they add only confusion to the efforts toward diagnosis and treatment.

L. C. JOHNSON.

GOSLINE, H. I.: **The Localization of Hallucinations.** *The Journal of Laboratory and Clinical Medicine*, July, 1920, v, No. 10, p. 657.

The author states his views as follows:

On the basis of laboratory psychology all mental functions can be reduced to the simple processes: sensation, association, reaction, and inhibition. On the basis of this psychology the hallucinations are reduced to simple processes and the results are correlated with the anatomy of the nervous system. Psychology is carried into psychopathology for the purpose of making anatomic localizations.

The writer attempts to conclude from the patient's symptoms as to whether the pathologic process is an irritative one or a destructive one.

Conclusions.—(1) It is possible to judge from the patient's symptoms as to the localization of hallucinations in any given case.

(2) The localization is usually in one of three foci: namely, the sensorimotor neurone, the sensorisensory neurone, or the thalamocortical neurone.

(3) That the symptoms are evidence of hyperkinesis which takes place either by direct irritation of the neurone in question or by defect of any other neurone which seeks a final common path with the neurone, in question.

(4) That the symptoms of the patient are sufficient to tell the observer which process is at work, if he keeps the tenets of the psychology upon which the analysis is based, firmly in his mind.

C. M. ANDERSON.

WATTS, F.: **The Outlook for Vocational Psychology.** *British Journal of Psychology*, 1921, xi, Part 2, p. 194.

The vitality of vocational psychology in America was proven as a whole in the selecting, on a huge scale, the men most suitable for executive positions in the United States Army during the recent World War. So far, however, the unfits have been weeded out, not the misfits. The Taylor System has provided a tendency to work out an organization which involves a distinct separation between the planning department and the performing department; all the brain-work falls to the former, all the bodily toil to the latter. For the factory operative a "semi-anatomic attachment to the machine" is selected rather than a brain or a will. Link found his work becoming increasingly difficult when he attempted to deal with workers of a more intelligent type. Münsterberg's famous car-driver test has singled out the man of undifferentiated general ability, rather than the one who was primarily adapted to this special work. College students stood the test with even better results. In the tests it must be borne in mind that the farther we get away from the activities actually employed in the work, the more likely it will be that we shall miss whatever specific aptitude may be demanded in the actual task.

Imitative tests have been greatly advocated because they obviate the relationship between general ability and the specific intellectual aptitudes. Link himself works at the task of devising tests. In many tests, so far, the unusual insight and the skill of Münsterberg, and other testers have made amends for the insufficiency of the analytic methods.

Watts agrees that man as a "creature" can be studied and tested by the psychophysicist as an organism, whose perceptions and impulses are individually colored by his instinctive preferences and antipathies, and that more as a "creator" must be looked upon as the master of these means to his self expression. He is capable, as a supermechanism, of creative artistic work. He may be a super-organism of ideal devotion and purpose, or a superrational being of intuitive insight and understanding. The author divides his scheme on intelligence into the following:

(a) *Creature*.—(1) Mechanical, for instance in routine skill; (2) organic in instructive skill; (3) rational in reasoning ability and scientific skill.

(b) *Creator*.—(1) Superrational, as in instinctive understanding; (2) superorganic, as in ideal interests; (3) supermechanical, as in artistic skill.

The perfect intelligence test will have to elicit the power of mastering new problems as well as old ones, and the power of instinctive motivation and of mechanical efficiency. Intelligence is the "general capacity of an individual to adjust his thinking both to familiar and to unfamiliar requirements of his environment, whether it is that to which he is accustomed or unaccustomed, and to mould it when necessary to suit his needs." Higher forms of intelligence have so far not been ably tested. "General qualities", "persistence" and "cleverness" factors must be studied in addition to intelligence. The test for the determination qualities must involve the following:

(1) The degree of readiness of the subject to commit himself; it may give an idea of his decisiveness and be a quality in executive work.

(2) For a responsible position a person, who commits himself too freely without valid reason, will be unsuited.

(3) A person who is too cautious or timid, who has good grounds for holding decided opinions but rarely or never commits himself in full, is equally unfitted.

"Following instructions" test, and "testimony" tests are valuable means for the vocational psychologist. The author has devised another test, ten questions to be answered on ten pages in one half hour. On each page three questions are set out involving a routine operation, such as counting figures, the accurate comprehension of instructions with the liability to follow them, and the tackling of a question of a more difficult kind. Subjects have almost invariably the questions which interest them most. The questions avoided may give a clue to the counterbalance in the subject's abilities. Questions showing the attitude of the subject to the ego and general ethical principles can be introduced.

GRIFFITH, J. P. C.: **Acute Cerebrocerebellar Ataxia.** *American Journal of Diseases of Children*, August, 1920, xx, No. 2, p. 82.

The author reports 4 cases of acute hemorrhagic encephalitis with symptoms of cerebellar involvement; he thus designates the condition as "acute cerebellar encephalitis", but since the cerebrum is always involved in all cases, "cerebrocerebello-bulbar encephalitis" is a better term. Both regions are affected in varying degrees, the symptoms usually indicating which area is most involved. The cerebellum may escape entirely. As reported in other cases in literature the etiology varies, but the acute infectious diseases play an important part. One of Griffith's cases followed a severe attack of measles, while 2 others probably followed influenza. The symptoms of 1 case had a decided resemblance to those of lethargic encephalitis. Among the common symptoms present in the 4 cases and in other reported cases were: unconsciousness of short duration; ataxia; affection of speech, which may last for months; mental disturbances; nystagmus; "loss of power"; active tendon reflexes. Vertigo is not present. As to life, the prognosis is good, and in most instances all traces of the disease disappear.

T. B. GIVAN.

INTERNATIONAL MEDICAL DIGEST

Vol. II

MAY, 1921

No. 5

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	386
Section on General Medicine - - - - -	387-422
Section on Laboratory and Research - - - - -	423-440
Section on Pediatrics - - - - -	441-456
Section on Roentgenology and Electrotherapeutics - - - - -	457-468
Section on Neurology and Psychiatry - - - - -	469-480
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-xv
Index of Subjects - - - - -	xvi-xliv

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1921, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. MCELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHREER
JACOB ROSENBLoom
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

MAY, 1921

No. 5

SECTION ON GENERAL MEDICINE

McKINLAY, C. A.: **Behavior of Blood-pressure during the Use of the Stomach Tube.** *Journal of the American Medical Association*, Feb. 12, 1921, lxxvi, No. 7, p. 431.

The occurrence of epistaxis during stomach lavage in a case of arterial hypertension suggested a study of the temporary effects on blood-pressure caused by passage of the tube. Blood-pressure readings were taken in a series of cases in which stomach lavage was performed as a routine diagnostic measure and a therapeutic procedure.

Conclusions.—(1) There is, as a rule, an increase in blood-pressure of from 20 to 50 mm. of mercury with the passage of the stomach tube.

(2) There is greater increase in those cases in which there is retching.

(3) The increase in blood-pressure is not dependent upon straining or mental excitation.

(4) The percentage of increase is greater in cases in which there is a hypertension.

(5) Cases in which there is hypertension when under the physiologic effects of pilocarpin giving vagus inhibitory action show an average increase in systolic blood-pressure which is less than the increase when pilocarpin is not given. Similar cases with diminished vagus inhibition following atropin show no marked variation in the average increase from that noted in cases without atropin.

R. H. BENNETT.

COLLIP, J. B., AND BACKUS, P. L.: The Alkali Reserve of the Blood-plasma, Spinal Fluid and Lymph. *American Journal of Physiology*, 1920, li, 551.

Van Slyke has stated (*Jour. Biol. Chem.*, 1917) that the alkali reserve of the blood-plasma as measured by its carbon dioxid combining capacity is an index of the alkali reserve of the body fluids. In this article the authors report the result of determinations of the alkali reserve of concurrent specimens of blood-plasma, lymph, and spinal fluid under various experimental conditions. They find that the CO_2 combining power of the plasma is not an absolute index of the alkali reserve of all fluids. There is a very close agreement between the alkali reserve of the blood-plasma and lymph and there may be also a very close agreement between that of the blood-plasma and the spinal fluid. In shock, however, the CO_2 combining power of the spinal fluid as compared with that of the plasma is maintained at a relatively high level, while it remains at a comparatively low level when the NaHCO_3 content of the blood is increased experimentally.

W. H. EDDY.

ROBIN, A., AND BOURNIGAUULT, A.: Sulphur in the Cancerous Liver. *Bulletin de l'academie de medecine*, Paris, Feb. 24, and March 2 and 9, 1920, Nos. 8, 9, 10.

Sulphur has great physiological importance. There is hardly any human tissue that does not possess it. Its trophic value ranks it with carbon and nitrogen.

It takes part in the building of the proteic molecule in very many forms, being the principal cystein, a sulphurous amino-acid, that according to Maillard is one of the keystones of the whole proteic architecture in the human body. This biological importance of sulphur excited the interest of the authors in the behavior of this element in the cancerous tissues compared with the normal tissues. The authors chose the cancerous liver for their experiments.

Sulphur appears in cancerous tissues in the following forms:

(1) The sulphur that appears as cystein in the proteic molecule (insoluble sulphur.)

(2) The sulphur resulting from the evolution of cystein and other forms of insoluble sulphur, as well as the sulphur contained in the oxyproteinic acids, jecorins, etc., (sulphur soluble in ether, boiling water, and alcohol in the presence of heat).

(3) The sulphur of same origin but after accomplishing its full evolution and arriving at the extreme limit of its oxidation, (sulphuric sulphur.)

(4) Total sulphur that comprises the three preceding forms.

The technic used by the authors in the dosage of sulphur was as follows:

In a small porcelain capsule 0.25 grams (4 grains) of dried tissues are put, and 2 c. c. of distilled water are added. Later on 5 c. c. of pure nitric acid are added. The mixture is heated on the alcohol lamp until the liquid has been reduced to 2 c. c. It is then permitted to cool and is alkalized by the addition of potassium carbonate. The remainder is evaporated until dry and then the residue is mixed with 5 grams of minerizing powder. (This powder is composed of a double carbonate of sodium and potassium, 4 grams, and potassium nitrate, 6 grams). The mixture is put into another porcelain capsule and another gram of minerizing powder is added. The whole thing is calcinated by means of an alcohol burner. (No gas burner ought to be used). The mixture melts slowly and after the state of fusion has been maintained for one minute, it should be permitted to cool off. The resulting salt is dissolved in 50 or 60 c. c. of distilled water. It is then filtered and the residue is collected in a porcelain capsule. The filter paper ought to be washed at least three times, and the liquid used in the washing collected in the same porcelain capsule; HCl is added until the reaction becomes clearly acid. The liquid is then boiled; after 2 or 3 minutes the reaction is tested and the acidity is reestablished, if necessary, by adding some drops of HCl. Now 10 c. c. of a 1 in 10 solution of barium chlorid are added; boiling is stopped and the whole is left to rest for twelve hours. After that it is filtered on a filter paper that does not leave any ashes. The filter is washed several times until the water coming from the washing does not precipitate in the presence of nitrate of silver. The filter is then dried and burnt, the ashes are weighed and the amount of barium sulphate produced by the sulphur contained in the 0.25 grams of tissue is obtained. This figure is multiplied by 400 and the amount of sul-

phate of barium corresponding to 100 grams of tissue is obtained. Multiplying this by 0.34335 we get the amount of SO_3 . Multiplying this result by 4 we have the amount of sulphur (S).

The conclusions drawn by the authors out of their research, although not definite, are interesting.

(1) The less affected parts of the cancerous liver contain about 20 per cent more of total sulphur than the most affected parts.

(2) The relation of total sulphur to total nitrogen reaches in the less affected parts 10.04 per cent against 7.83 per cent on the most affected parts. In the control livers the figures obtained were 9.20 per cent as compared to 8.75 per cent in the normal liver. These figures admit the suspicion that cancerous tissue is built up with an amount of sulphur remarkably inferior to that of the normal liver, while sulphur accumulates in the less affected regions.

(3) The study of the nonproteinic and proteinic sulphur confirms this.

(4) The difference between the figures expressing the soluble sulphur, the soluble nitrogen and the total sulphur in the most affected parts confirms also the former statement.

(5) This difference in figures cannot be attributed to necrosis, as in the control livers the disintegration of sulphur occurs in a way similar to that of the normal liver and different from that of cancer.

(6) The increase of sulphur in the less affected regions cannot be explained by the direct action of cancer or by a defense reaction.

(7) It rather recognizes as its cause a special way of disintegration of the still healthy protein, some kind of preparation for cancer, which only puts in liberty certain aminoacids from the proteic molecule of the still healthy tissues (hexonic bases), while cystein would remain attached.

(8) The process is otherwise in tuberculous tissues, in which the sulphur can be seen to diminish in the less affected parts, being increased in the normal lung. In contradistinction to the cancerous ferment, the bacillus disintegrates all of the proteins of the healthy tissue, even cystein, and then it builds up the tuberculous tissue with all the end-products. This fact constitutes a further argument against the parasitic theory of cancer.

(9) The sulphuric sulphur, the figure for which is 34.9 per cent in the more affected regions, that is, higher than the figures

obtained in the relatively healthy parts, and the relation of which to total sulphur increases in the more affected parts, can be considered as an action of oxidation and defense against the toxicity of the aromatic products resulting from the dislocation of the cancerous tissue. This defense reaction is not observed in the tuberculous tissue. But in this tissue other defense reactions take place which cannot be found in cancer.

(10) These new facts speak in favor of the existence of a disintegrating ferment which acts in a special way upon the protein of the organ in which cancer is going to appear, thus preparing the way for its development. These results give birth to many therapeutic problems, the resolution of which will throw perhaps a new light on the chemotherapy of cancer.

C. F. ARROYO.

GIFFIN, H. Z.: *The Relationship of the Anemias to Life Insurance.*
New York Medical Journal, Sept. 11, 1920, cxii, 358.

Giffin summarizes this subject as follows:

(1) The increase in the incidence of pernicious anemia makes it advisable to consider this disease separately in mortality statistics rather than to include it among the anemias in general.

(2) Life insurance examiners should be required to report a hemoglobin determination of each applicant for life insurance (a simple scale would be sufficient.) Blood smears forwarded to the laboratory of the central offices by examiners would be of great assistance in excluding insurance applicants suffering with pernicious anemia and leukemia.

(3) The rejection of all applicants with anemia without a definite understanding concerning the possibility of a later reapplication and acceptance may be considered a serious injustice to the individual applying for life insurance.

(4) Applicants with anemia due to chronic hemorrhages, anemia from insufficiencies of diet, or as a result of functional dysphagia, may be expected to recover within one year at most after they have been subjected to proper treatment, and should, therefore, be permitted to reapply for insurance at a later date.

(5) Applicants who have had splenectomy performed for

splenic anemia, provided hepatic cirrhosis, disease of the biliary apparatus, and thrombosis of the splenic vessels are not present, must be considered good risks for term insurance after having been well for five years following operation.

(6) Applicants who have recovered from splenectomy for hemolytic jaundice may safely be given a more liberal form of policy if they have remained well for five years.

M. KESCHNER.

KRUMBHAR, E. B., AND MUSSER, J. H., JR.: **The Catalase Content of the Blood in Different Types of Anemia.** *Journal of the American Medical Association*, July, 10 1920, lxxv, No. 2, p. 104.

Nine cases of pernicious anemia were compared with 7 of secondary, 1 acute hemolytic, 1 Banti's disease and a case of congenital hemolytic jaundice before and after splenectomy. Nine nonanemic cases, including aortitis, premature menopause, suspected syphilis, trauma of the lip, headache and ten normal bloods, were used as controls. The method employed was that of Stehle, and potassium oxalate was used as a preservative. Due allowance was made for differences in the hydrogen ion concentration of the peroxid used as pointed out by Bodauský. It was found that normal blood liberated a far greater quantity of oxygen, that an almost identical average existed for the two forms of anemia, and that a wide variation was shown among individuals. They conclude that "under the conditions observed by us, the catalase content of the blood varies according to the concentration of red blood-cells and this ratio is not materially affected by splenectomy or by the various types of anemia studied."

VILLE, E.: **Foot and Mouth Disease in Human Beings** (Ueber Maul und Klauenseuche beim Menschen). *Munchener medizinische Wochenschrift*, July 23, 1920, No. 30, p. 869.

Contagion occurs either through ingestion of unboiled milk or by direct contact with diseased cattle. Schautyr succeeded in inoculating cattle from a human case. The highest mortality reported in

human beings is that of 8 per cent. This is unusual as the disease pursues a mild course. The author reports the following case: A farmer's wife, thirty-three years old, had attended sick cattle during an epidemic of foot and mouth disease. The first symptoms noticed were small vesicles on the lips and mucus membranes of the cheeks. These burst on the next day and left small ulcerations. The following day there was vomiting and bloody diarrhea, followed by a six weeks' abortion. This was followed by severe dyspnea. The patient died under the picture of cardiac weakness. At no time were there any cutaneous lesions. The urine contained albumin and casts and red blood-cells. Systolic blood-pressure was 125.

H. JOACHIM.

BENSAUDE, R., AND ANTOINE, E.: **Severe Non-dysenteric Colitis and Recto-colitis** (Les Colites et Recto-colites Graves non Dysenteriques). *Gazette des Hopitaux de Paris*, Feb. 21, 1920, xciii, No. 18; reviewed in *La Presse Medicale*, July 17, 1920, xxviii, No. 49, p. 488.

Besides the amebic and bacillary dysenteries, there is a group of cases which clinically resemble them, and in which the lesions are localized in the colon and rectum.

Of these cases, some have a definite cause, e. g., *parasitic infection* (*Lamblia intestinalis*, *Balantidium coli*, *Trichomonas*,) or *microbic infection* (typhoid, paratyphoid, paradysentery,) or *poisoning* (mercury, arsenic,) or *autointoxication* (uremia, gout, diabetes.) Others of these cases are cryptogenic, and despite careful clinical and bacteriological studies, their cause is unknown.

Of these obscure cases, there are three clinical varieties, which correspond to the anatomic lesions present:

(1) The bowel movements are abnormal. The presence of mucus, pus, and blood point to an involvement of the terminal portion of the colon; the clinical picture varies with the type of involvement:—There may be a *hemorrhagico-purulent* form, which is most common, or the *hemorrhagic* or *purulent* element may predominate. In these cases, the lesions are most marked in the mucosa.

(2) The irritation may result in a *sclerohypertrophic* form, which may result in *stenosis* or may simulate a *neoplasm*. True

tumors of the colon develop. In this type, the lesions are seen in the deeper portions of the intestinal wall.

(3) In the third type, the lesions are most marked in the serosa and subserous layer, resulting in a *peritoneal form*, with definite peritoneal reaction. The evolution of these inflammations is comparable to that of appendicitis, and it is to these cases that the name "left-sided appendicitis" has been applied.

Treatment:

- (1) Rest.
- (2) Milk and vegetable diet.
- (3) For hemorrhage:
 - (a) Emetin.
 - (b) Calcium chlorid.
- (4) For pain:
 - (a) Belladonna.
 - (b) Opiates.
- (5) For malnutrition:—physiologic serum to which has been added strychnin or adrenalin.
- (6) Local:
 - (a) Lavage with isotonic magnesium chlorid solution.
 - (b) Applications during proctoscopy.
 - (c) Diathermia.
- (7) Surgical intervention in the ulcerating form, and in the peritoneal and pseudocancerous varieties.

FREYSTADTL, B.: **Phlebectasia as a Cause of Tracheal Hemorrhage** (Ueber Trachealblutungen aus Venektasien). *Berlinger klinische Wochenschrift*, July 5, 1921, No. 27, p. 638.

Tracheal bleeding occurs in arteriosclerosis, hyperpiesis, congestion, hemorrhagic diatheses, acute infectious diseases, and from local diseases such as neoplasm, ulcer and dilated veins. The latter is most frequently unrecognized. The author reports 2 cases.

In 1913 a twenty-one year old locksmith sought the clinic on account of repeated attacks of hemoptysis. Family history was negative. His first attack occurred six years ago, when suddenly, while lying in bed, he brought up some blood accompanied by slight hacking. This persisted for six days. After an interval of ten

months there was a recurrence which lasted for one month. The patient suffered intermittent attacks. He spent some time at a sanitarium for pulmonary diseases but no tuberculosis could be demonstrated. He was discharged and since then he has had many attacks which have incapacitated him for his work. His physical examination at the clinic was negative except for some dilated veins on the right side of the cartilaginous nasal septum. Laryngoscopic examination however revealed a bleeding vessel on the anterior surface of the trachea. This was watched for several days. A tracheoscope was then inserted and the bleeding vessel was cauterized with some trichloroacetic acid. The bleeding ceased the next day and has not recurred since. The author then reviews the literature and quotes Massei's cases of plexuses of enlarged dilated veins. Pisenti's cases presented, in addition to tracheal varices, also some hemorrhoids and varicose veins on the lower extremities, with a family history of varicose veins. He therefore assumed that in these cases there was a familial tendency to weakness of the venous system.

The bleeding usually occurs after some physical exertion. The blood is not frothy, is unmixed with mucus and is not attended by severe coughing paroxysms. The diagnosis can be definitely established with the help of the tracheoscope. The hemorrhages are seldom fatal and usually quickly respond to cauterization with caustics or electricity.

In conclusion the author tries to impress the importance of making a diagnosis, as many of these cases are treated as pulmonary tuberculosis and the patients could be spared the inconvenience and expense of sanitarium and climatic and dietetic treatment.

H. JOACHIM.

HUMPHREY, J. F.: A Study of the Natural Saratoga-Nauheim Baths at Saratoga Springs, N. Y. *Medical Record*, Aug. 14, 1920, xeviii, No. 7, p. 262.

According to Humphrey the natural Nauheim baths are applicable to:

- (1) All chronic diseases having a high or low blood-pressure, prescribed with a régime for that disease.
- (2) All diseases of the heart with hypertrophy and decompensation, without tachycardia or dyspnea.

(3) Patients with an irregular and intermitting cardiac action, without tachycardia or dyspnea, or with very little. In such cases the heart action becomes regular, the intermissions lessened and the hypertrophy diminished.

(4) Patients with decompensation after the age of sixty. In these metabolism and assimilation are improved, the high arterial tension lowered, and the cardiac muscle strengthened.

(5) Patients with low blood-pressure due to any cause. Metabolism and the debility, myocardial relaxation, and anemia are improved. This improvement tends to raise the blood-pressure. With the improvement of the systolic tension the wide divergence of the diastolic tension, if any, is diminished coincidentally, demonstrating a normal reaction from the baths.

M. KESCHNER.

WILLIUS, F. A.: Report of a Case of Congenital Heart Disease with Complete Auriculoventricular Dissociation Presenting Unusual Features. *The Boston Medical and Surgical Journal*, Jan. 20, 1921, clxxxiv, No. 8, p. 64.

The case reported is that of a male of 20 years. He was born a "blue" baby and cyanosis was marked for the first two years. He was always short of breath so that he was unable to engage in the usual activities of other children. Clubbing of the fingers was noticed early; it was progressive until the age of 12. Examination showed a slender, underdeveloped, cyanotic man. Finger clubbing was marked; that of the toes less so. Dulness to cardiac percussion extended 3 cm. (1.19 in.) to the right of the midsternum and 10 cm. (3.94 in.) to the left. An extra systolic arrhythmia was present. At the second left intercostal space near the sternum a systolic thrill was palpable and a loud rough systolic murmur was best heard at this area. This was audible over the entire precordium, transmitted into the neck, especially into the left side, and toward the left shoulder. The murmur was audible in the brachial and femoral arteries. Jugular pulsation was visible. The liver was not palpable. There was no edema. The blood-pressure was 112:82. The blood showed 7,400,000 red cells, leukocytes, 9,200, hemoglobin 95 per cent (Dare.) X-ray showed the right heart dilated. While it

is difficult to state dogmatically the clinical type of lesion present, the probabilities are that it was a case of pulmonic stenosis, associated with patency of the *ductus arteriosus*.

The electrocardiograms revealed an interesting condition. The P-wave was inverted (negative), indicating an ectopic focus of stimulus production. An auricular arrhythmia was present, apparently not influenced by ventricular activity. The P-wave shows the tendency to occur sooner in each succeeding cycle. An abnormal T-wave was present in Derivation II and in Derivation III. The rate of the ventricles was greater than that of the auricles. The occurrence of this unusual type of complete auriculoventricular dissociation with congenital heart disease presents the possibility that the disordered mechanism is also congenital.

M. M. BANOWITCH.

JAWEIN, G.: **On the Causation of Cardiac Hypertrophy and High Blood-pressure in Renal Disease** (Ueber die Ursache der Herzhypertrophie und der Blutdruck steigerung bei nierenkrankung). *Berliner klinische Wochenschrift*, Sept. 13, 1920, No. 37, p. 869.

Various theories have been advanced such as Traube's mechanical, Senator's chemical, Gull and Sutton's precapillary fibrotic, and Letulle's inflammatory. The chemical theory is based on the nitrogen retention, especially that of urea. Ustinowitch and Israel have succeeded in raising the blood-pressure and producing cardiac hypertrophy by the injection and feeding of urea. The chemical theory cannot explain the right heart hypertrophy of nephritis, since in these experiments the left heart only was increased in size. The mechanical theory is based on the assumption of increased resistance in the renal circulation. Conheim ligated both renal arteries and did not succeed in producing an elevation of the blood-pressure. The author is of the opinion that in spite of the increased diuresis in chronic glomerular nephritis, there is a water retention in the circulation which throws an increased amount of work on the heart. In the nephroses the water retention is in the tissues.

In the mechanical disturbances, such as occur in aortic insufficiency and stenosis, it is the left heart that bears the brunt of the resistance. The beer heart which results from the excessive intake

of beer is a bilateral cardiac hypertrophy. Cardiac decompensation can often be precipitated by an increase of fluid intake. The blood circulates completely about one hundred and twenty times in an hour. If 500 c. c. water are ingested and retained for one hour, the work of the heart is increased by the weight of 60,000 c. c. of water.

Excision of one kidney produces a cardiac hypertrophy and rise of blood-pressure without a nitrogen retention. The same occurs in cystic kidneys and hydronephrosis.

The intake of large quantities of hot drinks does not raise the blood-pressure on account of the vasodilator effect of the same and the diaphoretic effect. C. A. Schmidt found that in nephritis the water content of the blood is increased and the specific gravity consequently lowered.

The author's conclusions are that the cardiac hypertrophy and increased blood-pressure are due to delayed water excretion properly of the kidneys.

H. M. FEINBLATT.

OILLE, J. A.: **Functioning of the Heart in Cardiac Disease.** *The Canadian Medical Association Journal*, Aug., 1920, x, 712.

Oille concludes that abnormal cardiac function depends upon a diseased muscle-myocardial disease. He considers myocardial disease present as follows:

(1) In cardiac failure of either type that with passive congestion and edema, and that with angina pectoris or cardiac asthma.

(2) When the heart is enlarged.

(3) Nearly, but not quite always, when aortic stenosis or insufficiency or mitral stenosis is present, or mitral insufficiency with enlargement. The extent of the enlargement is usually a rough indication of the amount of disease.

(4) When auricular fibrillation or flutter, or any grade of block or pulsus alternans is present.

(5) When the aorta is dilated or aneurysm is present.

(6) When pericarditis or adherent pericardium are present.

M. KESCHNER.

ROSENHECK, C.: **Juvenile Tabes.** *Journal of the American Medical Association*, Feb. 26, 1921, lxxvi, No. 9, p. 572.

A short review of the literature is given.

CHARACTERISTICS OF JUVENILE TABES: Age Incidence.

—According to most observers, the average age when the disease first manifests itself is placed at fifteen years.

Etiology.—In the vast majority of cases, hereditary syphilis is responsible for the development of tabes in the young.

Sex Incidence.—In an analysis of 89 cases from the literature there were twice as many females as males.

Onset.—From 35 to 40 per cent of the patients show an early visual disturbance which rapidly proceeds to an optic atrophy, and blindness. Lancinating pains marked the onset in 25 per cent of the cases. Bladder disturbances ushered in the disease in a considerable number of cases. Gait disturbance was the first symptom in a small number of cases. In 40 cases of tabetic optic atrophy in the young, 70.5 per cent were without ataxia, 20 per cent displayed slight ataxia, and 9.5 per cent pronounced ataxia. Crisis or girdle pains have not been observed at any time during the course of the affection in the young.

Diagnosis.—In differentiating tabes, only cerebrospinal syphilis and Friedrich's hereditary ataxia need be considered seriously.

R. H. BENNETT.

WALTERS, W.: **Bence-Jones Proteinuria: A Report of Three Cases with Metabolic Studies.** *Journal of the American Medical Association*, Mar. 15, 1921, lxxvi, No. 10, p. 671.

The most characteristic reactions of Bence-Jones protein are its precipitation from acid urine at temperature of from 55° to 60° C. [131° to 140° F.], its disappearance at the boiling point (100° C. [212° F.]) with the formation of a clear solution, and its reappearance as the solution cools. When concentrated nitric or hydrochloric acid is added to urine containing Bence-Jones protein, the latter precipitates in a dense white cloud, which goes into solution as the temperature is raised to the boiling point and reappears again as the urine is cooled.

The origin of the protéin is still in doubt; the most tenable hypothesis is that it represents either "normal, abnormal, or aberrant stages of bone synthesis, the completion of which is hindered by indeterminate pathologic conditions."

Three cases of Bence-Jones proteinuria are reported: one in a patient with an obscure diagnosis, one in a patient with generalized carcinomatosis, and one in a patient with true multiple myeloma. Some experimental studies were done on these patients.

Conclusions.—(1) A large quantity of albumin in otherwise negative urine in a patient with normal renal function and a normal blood-pressure and a marked secondary anemia should suggest the possibility of Bence-Jones proteinuria, especially when bone lesions are present.

(2) Bence-Jones proteinuria is significant from a diagnostic and from a prognostic standpoint of multiple myeloma, since it occurs in 80 per cent of all cases, and usually is followed by death in two years.

(3) The quantity of Bence-Jones protein excreted is independent of the protein intake, evidenced by an approximate constant excretion for three-hour periods, irrespective of changes in diet.

(4) The amount of protein excreted during the night when no food is taken is only slightly less than the amount excreted during the day.

(5) There is no constant relationship between the quantity of Bence-Jones protein and the urinary total nitrogen excretion.

R. H. BENNETT.

PAGNIEZ, P.: Attacks of Unilateral Amaurosis due to the Abuse of Tobacco, with Changes in the Color of the Iris (*Crises d'amaurose Unilaterale, d'origine Tabagique, probable avec Changement de Coloration de l'iris*). *Proceedings Societe Medicale des Hopitaux de Paris*, July 2, 1920; reported in *La Presse medicale*, July 7, 1920, xxviii, No. 46.

Pagniez reports his observations of a man of twenty-six, suffering with nephritis, but without azotemia or hypertension, who had several attacks of unilateral amaurosis, which lasted several hours. In the course of these attacks, the iris changed color. He believes

that the amaurotic crises are the result of a vascular spasm, which affects both the artery of the retina and the ciliary vessels. The cause of the phenomenon is probably the abuse of tobacco.

The change in the color of the iris during attacks of unilateral amaurosis has not been described hitherto.

S. KAHN.

GOLDSTEIN, H. I.: **Hereditary Hemorrhagic Telangiectasia with Recurring (Familial) Hereditary Epistaxis.** *Archives of Internal Medicine*, Jan., 1921, xxvii, No. 1, p. 102.

This disease is an hereditary affection, characterized by the occurrence of multiple telangiectases, appearing mostly on the cheeks, lips, ears, nose, fingers, and tongue. The lesions are more apt to become prominent and increase between the ages of thirty-five and fifty. There is a tendency to repeated and dangerous epistaxis. There is no demonstrable change in the blood. The author records the case of 11 members of one family so affected. He states that the treatment is very unsatisfactory. Coagulants have but little effect. Epinephrin solution, antipyrin, or hydrogen peroxid, used locally may check the bleeding. The chromic acid bead, electric needle, radium, and even excision may be resorted to for some of the lesions. The carbon dioxid stick has been used with some success. The patients may need iron, arsenic, etc., for their anemia.

The author has made a thorough search of the literature of this condition and found a record of 31 families so afflicted.

T. HOWARD.

CRESS, W. W.: **Intestinal Parasites as a Cause of Appendicitis.** *Medical Record*, July 24, 1920, xcviii, 143.

Cress notes that in the early literature on appendicitis, a great deal of attention was given to the relation existing between intestinal parasites and appendicitis.

Among the more common parasites that have been found in the appendix or appendiceal abscesses at operation, are *Ascaris lumbricoides*, *Oxyuris*, *Echinococcus*, and *Trichocephalus dispar*. *Oxyuris*

has been frequently found in the normal appendix as well as in pathological appendices removed at operation.

In children intestinal parasites may give rise to symptoms which closely simulate the clinical picture of appendicitis. Erdman (cited by the author) found in 4 out of 29 instances of acute appendicitis in children, from six to thirty pin worms in the appendix.

Amebiasis is in tropical countries frequently diagnosed as appendicitis, perforation of the appendix being a well-known fatal complication of amebic dysentery. According to Stitt (cited by Cress), chronic amebic dysentery gives rise to a moderate leukocytosis which, with the accompanying pain and tenderness in the region of the cecum, may lead one to operate on a normal appendix.

The author reports the case of a nineteen year old white male, born in North Dakota, with a negative family history as follows: Influenza one year ago, diarrhea with abdominal pain, six months ago, no venereal disease; present illness began six hours before he was admitted to the hospital, with typical signs and symptoms of acute appendicitis; at operation the appendix was found swollen, tense and hyperemic; ileum and cecum edematous and markedly congested; eighteen hours after operation, temperature rose to 103° F. [39.44° C.] pulse 114, and mild delirium; clouded sensorium; during the next twenty-four hours the patient had eighteen diarrheal movements; the stools consisted chiefly of blood and mucus and had an offensive odor; blood count showed 13,700 leukocytes.

Cultures of the stools and blood were negative. Microscopical examination, however, of the stools showed large numbers of actively, motile, flagellated, pear-shaped organisms, identified as *Lamblia intestinalis*. The diarrhea fever continued for four days, after which the patient made an uneventful recovery.

Cress has been unable to find in the available literature any reference to a case in which *Lamblia intestinalis* was considered to have been the cause of appendicitis. As a matter of fact the infection with this parasite is very rarely seen in this country. The cases of dysentery due to the *Lamblia* have been reported from countries bordering on Norway. The disease has been produced in guinea pigs by means of cysts of *Lamblia* obtained from human feces.

Methylene-blue is recommended for the condition, but the doses must not be so large that they may cause symptoms of poisoning. The results from emetin have been rather indifferent.

CHIDECKEL, M.: **Dreams as the Cause of Death and Disease.** *Medical Record*, July 31, 1920, xeviii, 182.

Chideckel's object in presenting this paper is to show the baneful effects of dreams in individuals suffering with cardiac disease and hypertension, leading to acute dilatation, rupture of a cerebral artery, and death; and that in many diseases of the nervous system dreams are the etiological factors, caused in most cases by disturbances of the gastro-intestinal tract.

He summarizes his conclusions as follows:

- (1) Dreams in children are caused by faulty digestion.
- (2) They are possible causes of serious brain lesions due to irreparable drainage to the cortex.
- (3) Most dreams in adults are due to the same cause.
- (4) Repeated tormenting dreams will produce critical injury even in adults, leading to cerebral lesions of a serious nature later in life.
- (5) Patients with cardiac disease and hypertension may "be killed" in their sleep by a terrifying dream.
- (6) Patients with cardiac disease or hypertension due to any cause should not be allowed to eat at least four hours before going to sleep.

M. KESCHNER.

CHRISTIAN, H. A.: **Bright's Disease with Special Reference to Treatment.** *Southern Medical Journal*, Aug., 1920, xiii, No. 8, p. 545.

Christian criticizes the prevalent tendency to pay too much attention to structural changes in the kidney and too little to the manifestations of a general disease process which is not merely the result of renal diseases. To him the best working basis is afforded by a very simple clinical classification of nephritis into acute and chronic, with a farther subdivision of the chronic into cases with and cases without edema. This classification he believes is sufficient for the needs of present-day management of nephritis, the treatment of which is purely symptomatic and largely empirical. He thinks he is justified in saying that we have almost no etiological knowledge of nephritis that would be of aid in treatment. Increased knowl-

edge of renal function, in contrast to the structural concept of the disease, has improved treatment. "Functional treatment", he adds, "is symptomatic treatment."

The indications in acute nephritis are to remove causes (acute infections) and retard progression of the disease. The latter is best accomplished by keeping the patient in bed, on a simple nutritious diet, low in salts and proteids, but not a too restricted diet. Catharsis and sweating are unnecessary. Mild laxatives are indicated. Diuretics are not called for. Edema is rarely sufficiently marked to require special treatment.

Uremia in acute nephritis is rare but when present, theoretically the indication is either to attempt to neutralize or destroy the hypothetical toxins or to increase their elimination. There are no sweating, active catharsis and diuresis. He is extremely skeptical of the value of diuretic drugs in uremia. The convulsions when present are best controlled by light chloroform anesthesia. He does not employ morphin for this purpose.

The treatment of chronic nephritis varies with the severity or stage of the process and the symptoms. While focal infections might possibly be a cause in some cases, Christian is opposed to indiscriminate tonsillectomy and tooth extraction. Much of the treatment hinges on the theory of physiological rest for the injured or overworked kidney. To bring this about he advises a relatively simple diet, rather low in proteids, very low in extractives, free of spices and condiments, rather low in NaCl and with moderate fluid content. Protein calories are replaced by carbohydrate and to a less extent by fats. Fluid intake is set at a level of about 1500 c. c. per 24 hours. Baths and cathartics to give free, not loose, movements are beneficial. Diuretics are of no value.

The uremia of chronic nephritis is treated like the uremia of acute nephritis, but more energetically.

He very rarely employs vasodilators for the accompanying hypertension but depends upon diet, baths and catharsis, and in excessively high blood-pressure he resorts to blood-letting. The edema in some cases is a very annoying symptom. Reduction in fluid intake and restriction of proteins and salts is indicated. He has not obtained good results from the Epstein high protein diet or from Fischer's alkaline treatment. Continued catharsis sometimes helps. Marked edema may promptly, but only temporarily, be relieved by

mechanical means. If the edema is due to cardiac difficulties, digitalis in active dosage, alone or combined with diuretics, gives prompt and efficacious relief. Digitalis and diuretics are of no value in cases of renal edema with a normal heart.

M. KESCHNER.

PFEIFFER, C.: **Emotional Exophthalmic Goiter and Syphilis** (*Goître exophthalmique d'origine emotive et syphilis*). *Le Progres medical*, Paris, April 24, 1920, No. 17, p. 187.

The author publishes the clinical histories of 3 patients who presented marked signs of exophthalmic goiter after a strong emotion. All of them, 2 men and 1 woman, had a clear history of syphilis and a positive Wassermann. The author calls special attention to this coincidence and sustains the point of view that a strong emotion is liable to provoke an alteration of the thyroid gland only when the soil is prepared by an infection of the gland itself or of the nervous centers which regulate its function.

The author thinks that any exophthalmic goiter from emotional origin develops on syphilitic soil only. The persons who are not infected merely present transitory functional troubles, such as tachycardia, flush or pallor of the face, diarrhea, etc. But when the trouble does not disappear and there are definite anatomical signs, this cannot be due alone to a simple functional alteration. There is a lesion behind the emotion, a lesion that is able to determine the fixation of the trouble called forth by the emotion.

Emotion can also produce pithiatic alterations. This trouble, it is true, is merely functional. Notwithstanding this, it is possible that the hysterical manifestations, such as shivering, anesthetics, and so forth, can have as underlying cause a primary infection. This is very important from the standpoint of treatment. The fact that the pithiatic accidents can be cured by persuasion is contradictory of this hypothesis, as such cures are very often transitory.

Pfeiffer thinks that the fact that among all the patients observed in 18 months only 3 cases of exophthalmic goiter were observed and all of them were syphilitic, is very important. The men could not be followed up, but in the woman the symptoms disappeared under a specific treatment for syphilis.

WAGENER, H. P., AND WILDER, R. M.: **The Retinitis of Diabetes Mellitus.** *Journal of the American Medical Association*, Feb. 19, 1921, lxxvi, No. 8, p. 515.

The series is composed of 44 cases of retinal disease observed in the Mayo Clinic since January 1, 1920, in the course of a study of 300 patients with diabetes. In about 80 cases of diabetes characterized by acute onset and progressively increasing severity, so-called *diabetes gravis*, no patient showed retinal changes. Retinitis occurred exclusively in diabetic patients with mild, easily controlled glycosuria in whom evidence of vascular disease was always present. The retinitis of diabetes, therefore, is the retinitis of cardiovascular-renal disease, modified in appearance and in stage of occurrence, possibly by the metabolic disturbances associated with the diabetes.

In the presence of diabetes, retinal changes seem to appear at an earlier stage of the vascular or renal disease than in uncomplicated arteriosclerosis or nephritis. In the most common type of diabetic hemorrhagic retinitis, the hemorrhages are of the small or large round nuclear layer variety and resemble those of a pernicious anemia and leukemia. Moderate vascular and renal involvement is a constantly associated factor. There is another type of hemorrhagic retinitis seen in diabetic patients in which superficial flame-shaped hemorrhages predominate. This seems to be dependent upon more advanced vascular and renal changes and has therefore been termed vascular hemorrhagic retinitis. Diabetic albuminuric retinitis indicates a well-marked renal insufficiency; while albuminuric retinitis, which naturally can occur in diabetics as well as in nondiabetics, appears only with still more marked vascular and renal disease.

R. H. BENNETT.

FABER, K.: **The Etiology of Achylia Gastrica** (L'Etiologie de l'achylie gastrique). *Archives des Maladies de l'appareil Digestif et de la nutrition*, Nov., 1920, x, No. 11, p. 1.

Hayem demonstrated the complete absence of the secretion of hydrochloric acid in gastritis associated with partial to complete atrophy of the gastric mucus membrane. Einhorn later used the term achylia gastrica to designate a complete absence of hydrochloric

acid and pepsin. Martius compared the condition with hemophilia and considered the achylia as due to a congenital condition of weak function, an individual anomaly.

The author believes that achylia gastrica is dependent upon a chronic gastritis due to exogenous factors and recognizes in principle no differences between an achylia simple or secondary to gastritis. On examining a large number of stomachs of patients with achylia, more or less anatomical alterations were observed; in many there was no atrophy but signs of chronic inflammation, while in others the degree of atrophy was most marked. The two conditions, inflammation and disturbed secretion are provoked by the same causes. The etiologic factors may be those acting locally to produce frequent and repeated irritation of the stomach mucosa, such as toxins and irritants taken with the food, or those of systemic origin, such as results from hematogenous intoxication observed in acute fevers, e. g., typhoid, paratyphoid, in the dysenteries and in sprue. The achylia in a number of the cases became evident only during convalescence and remained for a long period. Intoxication from acute and chronic infections, especially of the enteric canal, plays the most important part in the production of achylia. Chronic achylia was met with in 50 per cent of Basedow's disease and in as many cases of arthritis.

The author emphasizes the importance of determining the etiological factors and considers the histological and anatomical state of the mucosa as co-ordinate with the functional state.

H. M. FEINBLATT.

McGUIGAN, H.: **The Action of Cascara Sagrada.** *Journal of the American Medical Association*, Feb, 19, 1921, lxxvi, No. 8, p. 513.

The object of this paper is to call attention to some of the important untoward actions of cascara sagrada. More than twenty experiments were made on medical students and assistants. The fluid extract was used, as the aromatic fluid extract is much less active.

Results.—One c. c. will cause a laxative effect, usually one movement of the bowels in from eight to twelve hours. There is

little, if any, griping in these cases. Occasionally this amount of the drug produces no noticeable effect.

Two c. c. will cause two movements of the bowels in from five to twelve hours. There is usually considerable griping from this dose, which begins in about four hours and may last twenty-four hours.

Four c. c. cause three or four movements of the bowels, always accompanied with painful griping and some nausea. This griping may persist for two or three days, and the abdomen is somewhat tender; there is a desire to go to stool when no necessity exists. An indefinite uncomfortableness persists for several days.

Large doses of the drug may produce an inflammatory condition of the bowel, with pronounced nausea and griping. When more than 2 c. c. of the fluid extract is needed to produce a laxative effect, another drug should be added or substituted. Small doses several times a day seem to give better results than the sum of these doses given in a single dose.

R. H. BENNETT.

PHOCAS, A. G.: **Influence of Calcium on Glucosuria** (L'influence du calcium sur la glucosurie). *Bulletin de l'Academie de Medecine de Paris*, March, 23 1920, No. 12, p. 284.

The author recommends the use of lime water in the treatment of diabetes. He reports 9 cases treated with lime water all of which showed marked improvement. In some of them the presence of sugar disappeared completely. He thinks lime water the best method of administering calcium in diabetes, as its alkalinity serves to combat acidosis and to increase the oxidizing power of sugar. Lime is more suitable to fight acidosis than sodium bicarbonate. By over-saturating the organism with CO_2 , bicarbonate impairs organic combustion. Lime water acts to the contrary, because its excess fixes a certain amount of the CO_2 proceeding from combustion, and thus indirectly increases oxidation. In addition lime water through the action of the sodic ions, exerts a regulating action on the nervous hyperexcitability.

C. F. ARROYO.

VON SHOLLY, A. I., AND PARK, W. H.: Report on the Prophylactic Vaccination of 1536 Persons against Acute Respiratory Diseases, 1919-1920. *The Journal of Immunology*, Jan., 1921, vi, No. 1, p. 103.

Statistics are drawn from the employees of an insurance company. In the inoculated group, 445 (30.8 per cent) were absent from work from October 30 to April 3. In the noninoculated group 1235 (36.1 per cent) were absent. If we divide the absentees into groups according to the severity of their illness, we find 70.8 per cent of both the inoculated and the noninoculated fall into the mild class; 26.7 per cent of the inoculated against 25.7 of the uninoculated fall into the moderate class; and 2.4 per cent of the inoculated against 3.4 per cent of the uninoculated fall into the severe class. If we compare the incidence of the respiratory affections among the inoculated and the uninoculated, excluding pneumonia, and if we consider the severity of these respiratory affections, we may assert that the vaccines were of little or no appreciable value. If, on the other hand, we focus our attention on the figures that show a somewhat higher susceptibility to respiratory diseases among the vaccinated in their past histories, a larger group absence for respiratory disease among the not vaccinated and a longer average absence per person for attacks of "grippe" in the not inoculated group, we may conclude the vaccines had a beneficial influence. On the whole, balancing both sides, our evidence does not make a strong case in favor of the vaccines given by us as a prophylactic agent against acute respiratory diseases—pneumonia alone excepted. The work tends to confirm the conclusions of Lister, Cecil, and Austin on the value of a typed pneumococcus vaccine for pneumonia, and the importance of further research along this line.

W. LINTZ.

DARLING, S. T., AND SMILLIE, W. G.: The Technic of Chenopodium Administration in Hookworm Disease. *The Journal of the American Medical Association*, Feb. 12, 1921, lxxvi, No. 7, p. 419.

The maximum dose of chenopodium in adults is 3 c. c. [48.6 minims] but the dose most commonly given is 1.5 c. c. with graded

doses for children. This dosage should be divided into two parts and given two hours apart, and followed in two hours by a purge. The chenopodium is given in capsules. The authors found that if this treatment was given twice at an interval of ten days, more than 97 per cent of all hookworms were removed with slight inconveniences to the patient. The purpose of the four experiments described in the article were to study: (1) the influence of the preliminary purge, (2) the influence of preliminary starvation period, and (3) the influence of food.

The method of study was the one used by Darling, Barber and Hacker, in which a trial treatment was given and all stools kept and all worms counted and classified. Ten days later a full 3 c. c. test treatment is given to remove all remaining hookworms, and a comparison of the results of the trial and test treatment made.

The authors conclude that:

(1) A preliminary purge does not add to the efficiency of the treatment with chenopodium when the drug is given in two doses, 1.5 c. c. being considered the adult dose.

(2) A preliminary starvation period is not necessary in the treatment of hookworms with chenopodium; on the contrary the efficiency of the drug is lessened.

(3) A small amount of food given coincidently with the drug greatly diminishes the efficiency of the drug.

(4) In the smaller doses of chenopodium that are given in children, the decrease in efficiency of chenopodium, caused by the factors of preliminary purge, starvation period and the food, is much more striking than in the full adult dose.

R. H. BENNETT.

ALEXANDER, H. L., AND PADDOCK, R.: **Bronchial Asthma: Response to Pilocarpin and Epinephrin.** *Archives of Internal Medicine*, Feb., 1921, xxvii, No. 2, p. 184.

In a series of 20 cases of bronchial asthma, a general examination with routine laboratory aids and drug tests revealed no constant associated condition. Of the 14 male patients in the series, 8 presented signs of status lymphaticus. Signs which were considered as indicating this condition were: transverse pubic hair line, ab-

sence of thoracic and abdominal hair, scant axillary hair, scant facial hair of typical configuration, smooth skin, arching thighs, and broad type of pelvis.

Eleven normal individuals were subjected to the subcutaneous administration of 1-20 grain of pilocarpin and showed practically no reactions. Almost all of the asthmatic patients reacted to this dose with varying degrees of some of the following symptoms: asthmatic breathing, salivation, sweating, epiphora, flushing, and feeling of warmth. A positive reaction of this kind is supposed to indicate a state of vagotonia, and increased tone of the vagus system. A positive epinephrin response, on the other hand, is supposed to indicate a state of sympathicotonia, increased tone of the sympathetic system. It was found that a majority of these patients, beside reacting to pilocarpin, reacted also to epinephrin. The authors suggest that this may be explained by supposing that the predominating vagus tone is predominating because the sympathetic is underactive, but that the sympathetic, in spite of being underactive, is still hypersensitive. The asthmatic patients who responded most obviously to epinephrin were usually those with a low blood-pressure, and in some of them the reaction was decidedly disturbing. It was found however that these patients did not react unpleasantly to smaller doses (0.25 c. c. [4 minims] of a 1:1,000 solution), and that these doses sufficed to relieve their asthmatic paroxysms.

McCLENDON, J. F.: **Nutrition and Public Health with Special Reference to Vitamins.** *American Journal of Medical Science*, April, 1920, clix, 477-497.

Harris (*Am. Jour. Public Health*, 1919, ix, 491) records data from 2, 084 families representing in nationality and income a typical cross-section of New York City in the Summer of 1918. In 14 per cent of these families milk was entirely eliminated from the children's dietary. Children from 18 months to 12 years of age thrive better on 1½ pints of milk daily. Milk supplements cereal foods—it makes up for their deficiency in salts, certain amino-acids of the proteins and in the vitamins. Milk is a complete food, and as it does not require any precautions as to preparation, it is the best averter of malnutrition.

The supply of fresh green vegetables is not sufficient to be a substitute for milk. Grass is not adapted to human alimentation except in the form of sprouted grass seeds. In the sprouting of seeds, vitamins are synthesized in the young leaves. Wheat or rye, sprouted until the shoot extends an inch beyond the grains and heated in water to 70° C. [158° F.] to gelatinize the starch, form a cheap and convenient and palatable source of vitamins. The seeds may be freed from bacteria before sprouting (Braun, *Science*, 1919, xlix, 544).

Since beef fat is about as valuable a source of vitamins as butter is, beef drippings and fat should be eaten, and this applies to other animal fats. Prolonged cooking of fresh foods should be discouraged, but all canned goods should be heated to boiling.

The particular fondness of negroes for pork fat and white corn meal may be the chief cause of prevalence of rickets in negro babies, since the mother's diet does not contain enough fat-soluble vitamin to be transmitted to the milk.

AUDLE, J.: **The Diet and Health; Amount and Kind of Food Required.** *Medical Record*, June, 5, 1920, xcvii, 947-952.

Most of our adult population limit their dietary to seeds, tubers, roots and meats, the employment of the leaf or milk being rare or occasional. In experiments on animals limited to a similar diet, i. e., one without sufficient salts, growth was arrested and death resulted.

The addition of substances containing vitamins to the experimental diets produces an almost immediate change. For example, pigeons restricted to a diet of polished rice and distilled water will die in twenty-one days from polyneuritis, but if when in the last stage of dissolution, they are given a small portion of watery extract of the polishings, they will revive immediately. The rice polishings are assumed to contain the water soluble vitamin. Also, guinea pigs restricted to a diet of milk and oats will die in forty-two days. The addition of orange juice when dissolution seems imminent will relieve all symptoms, and the continued use of orange juice will permit the animals to live and thrive. The oats protein does not yield the necessary amino-acids (so it appears), or in other words, is not complete.

Other dietaries limited to flaxseed and corn, and two to millet, corn, oats, wheat and hemp, arrest growth. However the addition of mineral salts produces growth again. The use of calcarea ostrearum in all chronic diseases assumes a scientific position by these investigations, because of the already mentioned fact of the limited dietary of most adults.

Corn and peas, even with the addition of a leaf (cold slaw, lettuce, asparagus, spinach) are not a suitable diet for human beings, owing to the mineral deficiency, but this may be overcome by combining them with other food carrying calcium and magnesium in proper proportions, such as turnip-tops, whole milk, butter and cheese. The personal likes and dislikes of patients for the latter is usually a reliable guide in outlining the treatment in chronic ailments.

A diet limited to seeds is certain to produce carbohydrate dystrophy—a condition frequently, if not generally seen in children and practically universal in adults—the evidence being the rejection, under the selective draft, of more than two million men.

Defective nutrition is not limited to the poor and ignorant, though they give the most convincing proofs of the popular fallacies regarding a rational diet. Manny (*Survey*, Mar. 20, 1918) states that the growth of stunted children can be promoted with almost startling rapidity. The weight charts of boys in truant schools, for instance, show an almost perpendicular advance as soon as a chance for normal growth is afforded.

The only cure for the condition of defective nutrition among the poor, at least, is not charity, nor food clinics, but careful and systematic education.

BRANDENSTEIN, D.: **Abdominal Actinomycosis** (Ueber Bauchaktinomykose). *Deutsche Medizinische Wochenschrift*, May, 27, 1920, No. 22, j. 46, p. 603.

Brandenstein reports the case of a girl of 13 with a negative family, previous and personal history, who became ill in June, 1918 with symptoms pointing to the diagnosis of chronic appendicitis, for which she submitted to an operation on August 15, 1918.

On opening the abdomen the peritoneum was found to be swollen and thickened, and all that there remained of the appendix was a

stump to which the right tube was closely adherent; the latter was thickened to the size of a thumb, and filled with yellowish thin pus. The remaining internal genitals were markedly congested. The left tube was swollen and inflamed. The appendicular stump and right tube were removed, and the patient was discharged cured eleven days later. She remained well for 21½ months, when she was taken with chills, headache and anorexia. She had no particular pains anywhere until fourteen days later when she began to complain of pain in the right side of the abdomen, and in the right hip. Her right thigh was flexed on the hip at an angle of 45°; active movement of the hip joint was impossible; attempted passive movement gave rise to excruciating pains and showed that the hip joint was apparently immobile. The right lower abdomen was tender and rigid; the tenderness extended to the right iliac crest. In this region there was found a soft, "velvety" mass which merged with the tissues at the costal margin above, and with those at the greater trochanter below; anteriorly this was extended as far as the anterior axillary line. The overlying skin appeared normal. The general condition was very poor. She had a continuous high fever with remissions in the morning. The heart, the lungs and the urine, were negative.

A diagnosis of osteomyelitis of the hip bones was made, and operation decided upon. An extensive incision into the swelling revealed no pus and the bones themselves showed no evidence of any pathological condition. The skin, however, was undermined with numerous brown masses of granulations underneath it. Some of these masses could be removed with the fingers by introducing the hand under the skin; others had to be scooped out with the sharp curette. These findings at operation, even in the absence of the characteristic actinomycotic granules, were sufficient to establish a tentative diagnosis of actinomycosis. Microscopical examination later confirmed this diagnosis. The wound was left open and under aluminum acetate dressings healed very rapidly. At the time of this report (six months since the operation) there are apparently no evidences of recurrence. No induration can be found anywhere, and the patient is free from all subjective discomforts and is progressively increasing in weight, according to the latest data of her case on record.

M. KESCHNER.

NILES, G. M., AND KRAFT, H. N.: Some Observation of the Non-surgical Drainage of Pathologic Gall-bladders. *Southern Medicine and Surgery*, Feb., 1921, pp. 41-44.

In April, 1917, Meltzer published as a footnote to an article the following statement, "In experimenting with magnesium sulphate, I observed that the local application of a 25 per cent solution of the salt on the mucosa of the duodenum caused a complete local relaxation of the intestinal wall. It does not exert such an effect when the salt is administered by the mouth, that is, when it has to pass through the stomach before it reaches the intestines. The duodenal tube, however, apparently has reached an efficient practical stage. Therefore, to test in jaundice and biliary colic, I make the local application of a 25 per cent solution of magnesium sulphate by means of the duodenal tube. It may relax the sphincter of the common duct, permit the ejection of bile, and perhaps, even permit the removal of a calculus of moderate size wedged in the duct in front of the papilla of Vater. Twenty c. c. of the solution as a dose for an adult will bring no harm. The procedure could be developed into a practical, useful method."

This theory, with its contained possibilities, caught the attention of several clinicians, and Dr. B. B. Vincent Lyon, of Philadelphia, who conducted numerous experiments along this line, writes: "I have become more and more convinced of the practical ease with which both the normal and the pathologic biliary apparatus can be drained of its contents, with certain exceptions and within certain limitations. I believe it possible to segregate and study bile obtained from the duodenum, from the bile-ducts, from the gall-bladder and from the liver; and I believe it possible to make certain inferential diagnostic deductions as to the condition of health, or disease within those ducts, the gall-bladder or the liver."

Lyon claims that in some of his cases of cholecystitis with gall-stones present, he noted that the bile contained a "gritty" sediment, or that it was sand-like in consistency.

The practical therapeutic possibilities of this method of biliary drainage are certainly promising, but a sufficient time has not elapsed, nor our experience been sufficiently comprehensive to permit us to speak with authority.

To use the words of Dr. Lyon: "We are mechanically applying

the surgical principles of free drainage * * * * for gall-bladders that are atonic and contain static bile in which sooner or later there develop stones or a more serious pathological condition, and while applying surgical principles, we are doing it non-surgically, and avoiding certain surgical risks, and, even more important, we are preserving tissue which may possess a power of recovery of function beyond our present conception."

The writers state that the method is not disagreeable to any extent and even some markedly nervous patients have co-operated willingly and without seeming inconvenience. None of their patients have suffered any ill effects.

NEWS ITEM: Spahlinger's Treatment of Tuberculosis. *British Medical Journal*, Feb. 26, 1921, 307.

On April 28th, 1914, Professor LeAulle communicated to the Academie de Medicine a report on the treatment of pulmonary tuberculosis devised by Henry Spahlinger, a Swiss bacteriologist. The method consisted of a series of intramuscular injections of a combination of tuberculous antigens and ferments, and this "specific" treatment was combined with an "auxiliary" treatment of injections, either intramuscular or intravenous, of ferments associated with lipoids. A considerable number of cases were treated at the City of London Hospital for Diseases of the Chest at that time, and possibly there were treatments elsewhere. Exact statistics concerning these cases are not known to the writer.

Dr. A. H. Croucher of Eastbourne has communicated to the writer a translation of a further report made by Professor d'Arsonval to the Academie des Sciences of Paris on Feb. 7, 1921. This report states that the material used consists of antigens and ferments obtained from the tubercle bacilli. The antigens are separately inoculated in increasing doses according to a fixed scale, so that at the end of several months an injection of all the components of the bacillary bodies is made. The treatment has been carried on from 1915 to the present time in Switzerland, France, and England. Dr. Croucher states that all the patients known to him who were treated six years ago were alive and carrying on their ordinary work at the end of 1920. All these were, in 1913, suffering from advanced

tuberculosis, two with laryngeal complications. Dr. Croucher's report is accompanied by a statement from Dr. Leonard Williams, saying that certain patients with advanced tuberculosis with bacilli in the sputum, treated under his observation by this method in 1912-1914, had remained well since then without any specific antituberculous treatment since 1914. Examination in 1920 showed no trace of active tuberculosis—no cough, no expectoration.

WILKINSON, W. C.: **Letter. The Spahlinger Treatment.** *British Medical Journal*, Feb. 26, 1921, 307.

In this communication Dr. Wilkinson says that he has read the report of M. Henri Spahlinger's treatment of tuberculosis and has discussed it with M. Spahlinger. His method is based on the principle of active immunization by means of the products of the tubercle bacillus and his remedy is, therefore, specific. He speaks of antigenic treatment and not of "vaccination" or "treatment by vaccines", which would be irrelevant since tuberculin is not a vacciné. Dr. Wilkinson says that M. Spahlinger's method is the same that he has been using for thirty years. M. Spahlinger even shares his views on mixed infection". He claims to have treated in 1910, 1911 and 1912, five times as many cases as are reported for the Spahlinger method and that the patients are still alive and at work in 1921. He thinks that their methods may be the same, but that M. Spahlinger may have improved the methods of attaining immunity by using the products of the tubercle bacillus in some better way or in some modified form.

The writer believes that it is possible, by the products of the bacillus, to slowly build up a fairly efficient mechanism of immunity against it in the living state, even in advanced stages of pulmonary tuberculosis complicated with tuberculous ulceration of the larynx. Direct examination of the larynx, of the blood by Arneeth's method, and of the sputum, have given convincing evidence of the value of this method of immunization. If such results are possible in advanced cases, the treatment in early stages must inevitably be more successful.

Dr. Wilkinson suggests that the remedy be tried under conditions which he describes. Assuming that it will be in the hands of experts the following conditions must be fulfilled:

- (1) The remedy must be the one used in the treatment.
- (2) It should be used in a consecutive series of cases of all kinds, and not merely in selected cases; and all the cases treated should be fully published.
- (3) All cases should be under observation at least three or four years before a final judgment is passed.
- (4) The cases should be arranged in groups according to the character of the changes in the lungs.

NEWS ITEM: **New Serum for Tuberculosis.** *New York Times*, March 2, 1921.

Geneva, March 1, 1921.—I hear that the British Government has definitely decided to acquire the rights of making the anti-tuberculosis serum which Henry Spahlinger has discovered after researches and experiments lasting more than ten years. The British Government has asked Spahlinger to go to London and complete the negotiations in connection with the serum. Spahlinger, who has been in Paris lately, left today for London, and the agreement will, I understand, be signed this week.

Meantime the fame of the Spahlinger method of the treatment of tuberculosis of all kinds, and not merely pulmonary tuberculosis, has become so widespread that thousands of letters and cablegrams from all parts of the world are arriving in Geneva imploring the treatment. Cables and letters from the United States are particularly numerous. One New York millionaire offered Spahlinger \$20,000 if he cured him, but Spahlinger referred him to his ordinary physician, who, he said, could administer the serum without its costing so much. The serum, which at first was costly to prepare, can now be made at no greater cost than ordinary vaccine against smallpox.

Although Spahlinger has spent his father's gladly given fortune to the value of 1,000,000 gold francs upon experiments and researches, he does not desire to utilize his discovery for commercial or money-making purposes. Thus he immediately declined a highly advantageous offer of a drug company to purchase the sole rights of the manufacturing of the serum. He is far more concerned about preventing all possibility of spurious imitations of it being placed on the market.

Spahlinger's laboratory in Geneva is conducted on a very large scale. His father's mansion has been converted into experimental rooms, while the grounds are largely used for stabling and keeping horses, cows, donkeys, goats and other animals from which the serum is extracted. Hitherto Spahlinger has never received remuneration, direct or indirect, from his patients, who are of all nationalities. Spahlinger is only 39 years old, a Swiss citizen and not a doctor of medicine, although naturally possessing medical and scientific knowledge and attainments. At the university he obtained the degree of doctor of laws and although qualified to be a barrister he is before all else a scientist. He is still unmarried, but I hope I shall not forfeit his friendship if I make known that he has been engaged for some years to the only child of Duke Alfonso Garcolfi Hornyold of Blackmore Park, Worcester, England. The reasons for having deferred his marriage are his absorption in his scientific studies and his desire to be beholden for financial help in his researches to none but his father.

EDITORIAL: A New Anti-serum for Tuberculosis. *Lancet*, Feb. 19, 1921, i, 397.

Six years ago a report was made to the Academie de Medicine by Professor Letulle on a serum treatment for tuberculosis devised by M. Henri Spahlinger. A further report has lately been made by Professor D'Arsonval to the Academie des Sciences on behalf of M. Spahlinger. The report contains two sets of recorded cases by Dr. A. H. Croucher and Dr. Leonard Williams, British physicians. Dr. Croucher's report states that patients treated by him in 1913 for advanced pulmonary tuberculosis are now all at work with the disease apparently quiescent. Dr. Williams' report is of a series of surgical tuberculosis and of open pulmonary tuberculosis with bacilli in the sputum, and physical signs of advanced disease. Examined in October, 1920, these cases were free from active tuberculosis with the condition of the lungs in the pulmonary cases good. It is said that no bacteriologic details are given but that the report states that the treatment is based on the progressive destruction of tubercle toxins and subsequent active immunization. Cases are divided into two classes: (1) Acute, "treated with complex antitoxic and bacterioly

tic serums", and (2) chronic, treated by vaccination with a series of antigens and ferments, the former being derived from the bacillary substance of the tubercle bacilli. Patients are treated with a graduated series of injections of the different antigens given separately.

NEWS ITEM: **The Spahlinger Treatment.** *Lancet*, Feb. 26, 1921, 448.

It is stated that no supply of Spahlinger's serum is at present available for use in Great Britain, also that no evidence exists to justify the hope that the serum will prove a panacea for all forms of tuberculosis.

ROSENBAUM, H. A.: **The Heart in Scarlet Fever.** *Archives of Internal Medicine*, Oct., 1920, xxvi, No. 4, p. 424.

Of 1,770 scarlet fever patients treated at the Durand Hospital, Chicago, cardiac complications were observed in 106. Of these, 12 had valvular defects antedating the scarlet fever. A diagnosis of myocarditis was made in 88, endocarditis in 4, and pericarditis in 3. Of the patients in whom a diagnosis of myocarditis was made, 53 were classified as mild. The symptoms consisted of persistent feebleness, rapidity or irregularity of the pulse, but with little other disturbance. Thirty cases of myocarditis were moderately severe. These exhibited higher grades of myocardial disturbance, sometimes with definite signs of cardiac dilatation. Five of the cases of myocarditis were classified as severe. They were characterized by signs of cardiac dilatation, cyanosis and marked irregularity, feebleness and variations in the pulse-rate. One of the patients died rather suddenly on the fifth day of a severe illness. Another, on the seventh day, experienced a sudden severe pain in the cardiac region and difficulty in breathing. He was cyanotic and shocked and showed signs of a dilated heart. After much distress he recovered. The possibility of an embolism in a twig of one of the coronaries was considered. Myocarditis seems most common during the latter stages of scarlet fever and in early convalescence, but may occur at any time during its course.

Pericarditis was encountered three times. Two of the patients

died. The third recovered from the fever but it was left with a badly crippled heart, having also been subject to an involvement of the mitral valve.

Endocarditis occurred four times, including the patient just described. In 1, death occurred the thirtieth day and autopsy disclosed a fibrinous endocarditis of the mitral valve leaflets and aortitis. The other 2 had mild endocarditis and made good recoveries.

The 12 patients with preëxisting valvular lesions seemed but little handicapped, all recovering except 1 who had mitral insufficiency with markedly clubbed fingers, and who was very sick from the outset.

T. HOWARD.

CORNELL, E. L., AND STILLIANS, A. W.: **Syphilis in Pregnancy and Labor.** *American Journal of Syphilis*, April, 1920, iv, 342.

The treatment of the syphilitic during pregnancy is more essential and more difficult than the treatment before or after pregnancy. Many physicians seem to hesitate to use mercury and arsphenamin. The important fact to recall is that the kidney in pregnancy is called upon to do more work and is therefore subject to rapid and severe damage. The use of mercury may cause kidney damage and result in toxemia of pregnancy. It has been the practice to institute active treatment, using intramuscular injections of mercury daily for one month, and also to give four increasing weekly doses of neoarsphenamin at the same time. If the disease is apparently very active, mercurial rubs are used the following month. The intramuscular course and neoarsphenamin are given every other month until delivery. The pregnant case usually receives at least two courses and occasionally four.

RADIN, M. J.: **Chronic Lung Disease Following the Influenza Pandemic of 1918-1919.** *The American Journal of the Medical Sciences*, Aug., 1920, clx, Part 2, No. 581, p. 233.

Twelve cases were studied. The duration of lung disease was over one year in 3 cases; eleven months in 2 cases; ten months in 5

cases; and eight months in 2 cases. Pleuritis was present in 6 cases; 3 probably also had unresolved pneumonia. Chronic diffuse bronchitis was present in 3 cases and pulmonary tuberculosis in 3. In 9 cases the pathology was at the base, in the tuberculous cases at the apex. In the pleuritis cases no sputum was present, but it was copious in the bronchitis cases. Hemoptysis was found in 4 cases. Tubercle bacilli were found in 1 case. The pain was general in the chest except in 1 tuberculosis case in which it was localized. The nutrition was good in 8 cases, poor in 4. A lapse of an average of ten months after the original influenza has left two patients well, 2 unchanged, 3 tuberculous, one slightly asthmatic, and 4 improved. As to treatment, creosote and heroin gave the best results.

A. T. MAYS.

CASTAIGNE AND PAILLARD: **Chronic Syphilitic Icterus in Adults** (Les Ictères Chroniques Syphilitiques de l'Adulte). *Le Journal médicale Français*, Feb., 1920, ix, No. 2; reviewed in *La Presse médicale*, July 17, 1920, xxviii, No. 49, p. 488.

In cases of chronic jaundice, syphilis should always be carefully excluded by clinical examination, laboratory tests, and the therapeutic test. Chronic syphilitic icterus maybe due to several conditions:

(1) *Hanot's Cirrhosis*.—This is characterized by a mild or intense jaundice, hypertrophy of the liver and spleen, persistence of coloration of the feces, and the presence of bile pigments in the urine.

(2) *Hemolytic Icterus (Secondary, Tertiary or Heredito-syphilitic)*.—This is characterized by a definite jaundice, the presence of urobilinuria, normal size of the liver, hypertrophied spleen, and a diminished erythrocyte resistance.

Treatment.—(1) Mercury.

(2) Potassium iodid.

(3) Salvarsan.—This should be used with care, since patients of this type do not tolerate it well.

S. KAHN.

SECTION ON LABORATORY AND RESEARCH

JOHN, H. J.: **Pneumonia at a Base Hospital, 1918-1919.** *The American Journal of the Medical Sciences*, Aug., 1921, Part 2, No. 591, p. 244.

The study consists of personal observations of 137 cases at Base Hospital, Fort Sam Houston, Texas. The incidence of streptococcus hemolyticus in the throat was high, 42 per cent. Of cases of positive blood cultures, 92.3 per cent resulted in death; whereas only 57.64 per cent patients died with negative streptococcus hemolyticus blood culture. The influenza bacillus was found in the sputum in only 2.4 per cent and this low percentage might be due to the ordinary blood agar used, late cases of influenza, and no repeated examinations made to find the bacillus. Micrococcus catarrhalis represented 17.1 per cent with no deaths. A leukocytosis was found in all favorable cases. Patients having had a previous attack of pneumonia amounted to 11.67 per cent of which 25 per cent died. Complications were present in 21.89 per cent. Pleural effusion was present in 24.08 per cent of all cases.

A. T. MAYS.

SCOTT, R. W.: **Observations on the Pathologic Physiology of Chronic Pulmonary Emphysema.** *Archives of Internal Medicine*, Nov., 1920, xxvi, No. 5, p. 544.

Experiments with emphysematous patients, controlled by similar procedures with normal individuals, showed that up to a certain point the patients with emphysema could breathe higher percentages

of carbon dioxide without increase in the minute volume amount of air, than could the normal individuals. When the percentage became so high that a compensatory increase in lung ventilation was called for, the emphysema patients, being anatomically unable to respond in this manner, suddenly became distressed. The normal individuals breathed faster and deeper, increasing the minute volume of respired air gradually with the gradual increase of the percentage of carbon dioxide, and could in this way compensate so that they could breathe higher percentages of carbon dioxide without distress than could the emphysematous. A study of the blood showed that emphysematous patients had a higher CO_2 content of the plasma than normals, but that the hydrogen ion concentration was normal, and that therefore the sodium bicarbonate must have been correspondingly increased. The high bicarbonate level acts as a chemical factor of safety, enabling the emphysema patient to tolerate for short periods higher concentrations of inspired carbon dioxide than the normal. When, however, the tissue buffer is exceeded, there is little mechanical factor of safety as represented by pulmonary ventilation, and acute distress develops suddenly.

T. HOWARD.

BOSLER, A. G.: **Diphtheria Immunization.** *Illinois Medical Journal*, Sept., 1920, xxxviii, 185.

Using the Shick test as a means of determining susceptibility to diphtheria, the author began, in January, 1917, to secure a number of susceptible individuals, immunizing them with a toxin-antitoxin mixture and retesting for results. All subjects were selected from private practice except 50 nurses from the Englewood Hospital. The toxin for the Shick tests was supplied by the Illinois State Board of Health and the Chicago Health Department. The toxin-antitoxin mixture used was Parke, Davis & Co.'s "Diphtheria Prophylactic", each injection of 1 c. c. representing 5 doses of diphtheria toxin over-neutralized with antitoxin. In all, 122 individuals were tested, 68 adults and 54 children. The author deduces from this study the following conclusions:

- (1) The administration of toxin-antitoxin gives in 90 to 97

per cent of the cases an immunity which last over four years, in all probability longer and possibly for life.

(2) The immunizing action of toxin-antitoxin is slow and protection does not result for from 2 to 6 months and in some cases longer. Therefore, in cases exposed to diphtheria, antitoxin should be administered (*only to children with a positive Shick*) to afford immediate protection, remembering that its protecting action is of short duration. The indiscriminate administration of antitoxin as a prophylactic agent in adults exposed is wrong, and its use in the aged is to be condemned, and this contrary to the opinion of various boards of health.

(3) The reactions to the toxin-antitoxin mixture are apt to be severe in adults. It is questionable, whether adults are to be immunized even though they react positively to the Shick test, unless in cases of nurses and others who are constantly exposed to infection.

(4) The mixture, in full doses, is well borne by children. Infants under six to nine months should not be immunized, unless it be with the distinct understanding of the fact that immunity occurs in only half of the cases, the immunizing action of the toxin-antitoxin mixture being hindered by the presence of inherited antitoxin. Children between nine months and two years should be immunized irrespective of the Shick test, and only those giving a positive reaction should be immunized.

(5) The toxin-antitoxin mixture should be prepared in a reliable laboratory and before being sent out should be carefully tested for potency and toxicity.

M. KESCHNER.

McCLURE, C. W., REYNOLDS, L., AND SCHWARTZ, C. O.: **On the Behavior of the Pyloric Sphincter in Normal Man.** *Archives of Internal Medicine*, Oct., 1920, xxvi, No. 4, p. 410.

Fluoroscopic studies were made with normal subjects after the ingestion of carbohydrate, protein and fatty meals mixed with emulsions of barium sulphate. It was noted in each instance that as soon as the subject could ingest the meal and be prepared for fluoroscopic examination, a matter of but a few seconds in many instances, gastric peristalsis was active and as each wave approached the pyloric

sphincter. barium passed into the duodenum over a period of about ten seconds. The introduction, by means of a tube, of N/20 solution of HCl into the stomach almost on the atral end of the pyloric sphincter, produced no effect upon the opening or closure of the sphincter. N/40, N/20, and N/10 solutions of HCl introduced into the first, second, and third portions of the duodenum produced no effect upon the behavior of the pylorus, except in some instances in which it was interpreted as the result of abnormal irritation of the mucosa by the movement of the tube. Neutralization of the contents of the duodenum by means of sodium bicarbonate did not prevent the closing of the pyloric sphincter. The authors consider that the results of these experiments indicate that acid is not the principal factor controlling the opening and closing of the pyloric sphincter in man.

T. HOWARD.

MASON, E. C., AND PIECK, C. E.: **A Pharmacological Study of Benzyl Benzoate.** *The Journal of Laboratory and Clinical Medicine*, Nov., 1920, lvi, No. 2, p. 62.

In the recent medical literature a considerable number and variety of clinical conditions are described as having been benefitted, often in a striking manner, by the use of the benzyl esters. Among these conditions may be mentioned (1) excessive peristalsis of the intestine, as in diarrhea and dysentery, (2) intestinal colic and enterospasm, (3) pylorospasm, (4) spastic constipation in which there was a tonic spastic condition of the intestine, (5) biliary colic, (6) ureteral or renal colic, (7) vesical spasm of the urinary bladder, (8) spasmodic pains originating from the contractions of the seminal vesicles, (9) uterine colic, (10) arterial spasm, including hypertension, and (11) bronchial spasm. It was the aim of the authors to shed some light on the mechanism by which these conditions are relieved, and to ascertain the concentration of the drug in the blood necessary to produce the desired results.

The injection of a sufficiently large dose of benzyl benzonate is followed by a prompt, prolonged and pronounced fall of blood-pressure. From the nature of the blood-pressure curve produced, the authors conceived the idea that the heart played an important

rôle in this lowering of the arterial tension. The changes in the blood-pressure are obviously due to a weakening action of the drug on the heart.

Its action in sufficiently large doses on the intestinal tract caused an increased tonus of the intestine, depression of respiration and lowering of the blood-pressure. It caused a shrinkage in volume of the spleen and kidney, also active contractions with large doses. The recently suggested use of benzyl benzoate in clinical conditions presumably dependent upon excessive or abnormal contractions of the uterus indicated that the drug would probably produce relaxation of this organ. Experiment showed that it affected the uterus only slightly, even in very large dosage, obviously too large for clinical usage.

In bronchial asthma it was shown, by experimental work on dogs, that benzyl benzoate did not cause a bronchial dilatation in intact (pithed) dogs, and that it was a satisfactory bronchodilator.

The possibility that the drug might be used in cases of pulmonary hemorrhage in tuberculosis was not supported by the authors' experiments, as their work showed it could be of no use in the manner of treatment of hemoptysis in pulmonary tuberculosis, providing the drug should act in clinical cases as it had in the experiments.

C. M. ANDERSON.

VOEGTLIN, C., AND SMITH, H. W.: **The Relative Therapeutic Value of Arsphenamin and Neo-Arsphenamin of Different Manufacturers.** *Journal of Pharmacology and Experimental Therapeutics*, 1921, xvii, No. 1, p. 449.

Six different brands of arsphenamin, including a German preparation, have shown approximately the same trypanocidal activity. Slightly greater variations in activity were observed with six different samples of neo-arsphenamin, the maximum difference being 80 per cent. There appears to exist no relation between toxicity and trypanocidal action of arsphenamin and neo-arsphenamin. It is suggested that the alleged greater effectiveness of arsphenamin over neo-arsphenamin in the treatment of human syphilis should be attributed to the fact that arsphenamin is precipitated at the hydroxyl ion concentration of the blood, in consequence of which the rate of

its oxidation and elimination from the body is considerably diminished. The study of trypanocidal action of some aliphatic arsenicals has confirmed the fundamental principle formulated from the previous study of the aromatic arsenicals,—that the trivalent oxids are the only forms of arsenic which exert a direct toxic action upon protoplasm. Cacodylic acid, or sodium cacodylate does not possess any trypanocidal action even in lethal doses. Methyl and ethyl arsenic acid show a parasitocidal action only when used in doses approaching the lethal dose.

C. A. SCHMID.

SACHS, H.: **Electrocardiographic Studies in Pregnancy** (Ueber das Elektrokardiogram der Schwangeren). *Berliner Klinische Wochenschrift*, No. 34, Aug. 23, 1920, p. 803.

The author first discusses the significance and causation of the various waves of the electrocardiogram. He gives the hypotheses as to the cause of the T-wave. He studied 21 cases of pregnancy and found all the waves increased in height in 17 of these, particularly the T-wave. He thought this might be due to cardiac hypertrophy or upward displacement of the heart, due to the abdominal distension. Studies ten days postpartum showed a return to the normal waves.

H. M. FEINBLATT.

DEMEYER: **Origin of the Ventricular Phases of the Electrocardiogram.** *Academie Royale de Belgique*, 1919, 2-3; abstracted in *Archives des maladies du coeur*, Feb., 1920, 81.

Since the first description of Einthoven, numerous discussions have arisen concerning the significance of the T-wave and of the isoelectric zone which DeMeyer has called Z.

Einthoven admitted that during this Z-period the entire mass of the heart muscle is in contraction and the electric potential of the heart expands equally to both sides. But, this explanation supposes that the heart is situated in the middle of the thorax, and that its two divisions are of equal volume with an equal contraction period which is probably not the exact condition.

As for the T-wave, it represents the contraction of the base of the right ventricle according to Einthoven. Krauss and Nicolai interpret it as the contraction of the spiral fibers. Frederick showed by the graphic method that there exists an interval of only several hundredths of a second between the apex of the base, while between Q and P, the interval sometimes amounts to several tenths of a second.

DeMeyer points out that he has shown before in the contraction of striated muscle that besides action current, there exist other electric manifestations which he calls the currents of distortion. These, he believes, are also present in the myocardium. The electrocardiogram of the skeletal muscles shows exactly similar electric to that of the heart. The first rise is due to the true action followed by a period of rest. The second rise lasts during the contractions of the muscle and is due to currents of distortion.

He, therefore, concludes that the Q-R-S complex which coincides with the contraction of the ventricle shows the true action current in the heart or the process of excitation of muscular fibrils.

The zone Z corresponds to the time of rest between the contraction of the fibrils and that of sarcoplasm. This period of rest occurs in veratrinized muscle as well. Finally, the rise T corresponds to the phase of contraction of the ventricle. It lasts exactly during that period and is due to the currents of distortion such as one observes in all striated muscles.

M. H. KAHN.

LABBE, M.: Disturbed Protein and Fat Metabolism and the Origin of Diabetic Acidosis. *Congres Francais de Medicine*, xiv; reported in *La Presse medicale*, June 5, 1920, xxviii, No. 37, p. 366.

Abstinence from carbohydrates is not the cause of the acidosis in diabetics. Abstinence from all food—a starvation treatment—diminishes the urinary excretion of acetone body in these patients.

Chemical study and experimental work tend to show that the acetone bodies rise from a faulty fat and protein metabolism. Study of the acidosis of diabetics shows that fats are less ketogenic than are the proteins, in this disease, and that a protein diet is more dangerous than is a fat diet.

The danger of an excess consumption of protein in diabetes does not arise from the formation of oxybutyric acid, but also from the presence of incompletely metabolized toxic nitrogenous substances, belonging to the group of polypeptids.

Starvation is therefore not contraindicated in diabetes. Excess of protein should not be given in the diet.

S. KAHN.

REYMAN, G. C.: **On the Placental Transmission of So-called Normal Anti-bodies.** *The Journal of Immunology*, July, 1920, v, No. 4, p. 391.

By examination of the proportion between the amount of antitryptic-acting bodies in the blood of goats and their new-born kids, the titers of the kids were in all cases found to be higher than those of the mother animals. The titers of the mother animal as a rule increase before parturition.

There seems to be some connection between the growth of the kids and the antitryptic-acting power of the blood, so that the titer of the kid decreases when it thrives badly, and increases when it thrives well; this harmonizes with the supposition set forth by previous experimenters, that the antitryptic action is connected with a fat or lipid effect.

W. LINTZ.

TRIAS, J.: **The Injection of the Purkinje Fibers and the Lymphatics of the Endocardium.** *Travaux de la Societe de Biologie de Barcelone*, 1917, v, 191; abstracted in *Archives des Maladies du Coeur*, Feb., 1920, p. 76.

The subendocardium injection for the study of the lymphatics permits at the same time an observation of a part of the bundle of His, especially the Purkinje fibers, of certain animals, the cow and the rabbit.

After injecting and examining the base of the left ventricle, one observes the net-work of fibers. The trabeculæ, made by the intercrossing and ramifying fibrils, form in certain points star-like nodes

that sometimes attain a diameter of one millimeter. They are usually of uniform caliber and are either straight or slightly curved. The diffusion of the injecting fluid takes place very rapidly; sometimes through both ventricles from one injection.

Distinct from the Purkinje fibers appears the net-work of lymphatics just below the endocardium. The vessels are extremely thin and of irregular caliber with dilatations and constrictions and a tortuous crossing. The intersections of these vessels are really points of anastomosis. Here and there, a vessel will diverge to plunge into the depths of the myocardium.

M. H. KAHN.

LAMSON, P. D.: **The Part Played by the Liver in the Regulation of Blood Volume and Red Corpuscle Concentration in Acute Physiological Conditions.** *Journal Pharmacology and Experimental Therapeutics*, Sept., 1920, cxvi, No. 2, p. 125.

Physiologically a variation in the number of red corpuscles per unit volume of blood occurs in many conditions: mental excitement, such as fear and rage, exercise, asphyxia of any kind, and the injection of epinephrin.

The polycythemia in one acute physiological condition, namely, that produced by the intravenous injection of epinephrin, has been explained by the epinephrin causing an obstruction to the venous outflow from the liver, the passage of the blood into the liver lymphatics, the washing on into the general circulation by the arterial blood-stream of the red cells which cannot pass out with the plasma, and finally after the action passes off, the return of this fluid by way of the thoracic duct to the general circulation, causing a fall of the erythrocyte count to normal. If the liver is removed from the circulation the injection of epinephrin causes no change in the number of erythrocytes per unit volume of blood.

The obstruction of the venous outflow of the liver is said to be due to a swelling of the liver cells causing a great increase in the portal pressure but no change in the pressure of the vena cava. That fluid actually escaped from the blood was shown by the fact that there was a great increase in the flow of liver lymph.

R. H. BENNETT.

VOEGTLIN, C., AND SMITH, H. W.: Quantitative Studies in Chemotherapy. The Trypanocidal Action of Antimony Compounds. *The Journal of Pharmacology and Experimental Therapeutics*, July, 1920, xv, No. 5, p. 453.

Rats infected with *Trypanosoma Equiperdum* were experimented upon. The course of the disease can be accurately followed by counting the organisms in the blood stream. Four antimony compounds were studied, antimonyllactate, antimonypotassium-tartrate, and antimony thioglycollate. Antimonyllactate was used in most of the work reported in this paper. In determining the minimal effective dose of the drug, animals having 100,000 to 300,000 organisms per cubic millimeter of blood were used. The minimum effective dose is considered to be a dose which, given intravenously, would reduce the trypanosomes to none or very few.

This minimum dose of antimonyllactate was found to be 2 c. c. M/100 solution per kilo. Larger doses were required in cases in which the organisms numbered much over 300,000 and smaller doses sufficed in milder infections. Doses below the minimal effective dose had no appreciable effect upon the organisms.

H. M. FEINBLATT.

LAIGNEL-LAVASTINE: Note on Morphology of Ganglion of Wrisberg. *Societe Biologie*, Nov. 9, 1917; abstracted in *Archives des Maladies du Cœur*, Feb., 1920, p. 78.

Sixty-two examinations with histologic studies were made of the superficial cardiac plexus which contains the ganglion of Wrisberg. The following summary of the findings may be noted.

The macroscopic form is conglomerate. It was disseminated and consisted of ganglionic corpuscles. In a third form, it consisted of small cellular nuclei disposed along nerve-fibers.

The characteristic element of the ganglion of Wrisberg is the sympathetic nerve-cell. The Nissl stain shows it to be round or oval and especially gyrochromic stained. According to Cajal, the dominant form is a large nerve-cell with short dendrites, while some cells contain long dendrites or a combination of the two.

M. H. KAHN.

LAIGNEL-LAVASTINE: **Pathologic Histology of Ganglion of Wrisberg.** *Societe Biologie*, Nov. 23, 1918; abstracted in *Archives des Maladies du Cœur*, Feb., 1920, p. 78.

In general paralysis,—perivascular inflammation, deformity of the dendrites.

In syphilis,—lymphatic infiltrations.

In dementia precox,—atrophic deformity of the large cells with an increase of the number of cell groups.

In senile dementia,—extremely abundant amount of intercellular pigments.

In alcoholism,—premature aging of the sympathetic cell with enormous congestion of chromatolysis.

In acute infections,—marked congestion of granules; degeneration.

In asystole,—marked contraction and congestion of the nerve-cells.

M. H. KAHN.

DELEVA, P.: **The Study of Microfibrillation of the Myocardium.** *Archives Internationales de Physiologie*, August, 1914, xv, p. 1; paru en Nov., 1918, pp. 98-102; abstracted in *Archives des Maladies du Cœur*, Feb., 1920, p. 79.

Leon Frederick in 1906 described under the name of "Microfibrillation of the Myocardium," an intense twitching like the movements of vibrating cilia and appearing independently from ordinary fibrils. In this study, observation of this phenomenon was made by means of the ultramicroscope.

Microfibrillation is a physiologic property which exists only in certain portions of the excited myocardium and which disappears after coagulation. It is not an optical illusion. It is seen clearly just below the endocardium or in cross section. It does not occur in the new-born or in cold-blooded hearts. It does not interfere with the normal cardiac contraction. It is still present even if the fibrillation has disappeared with death of the heart muscle and is the last vital manifestation of the myocardium.

M. H. KAHN.

HIRSCHFELDER, A. D., BICEK, J., KUCERA, F. J., AND HANSON, W.:
The Effect of High Temperature upon the Action and Toxicity of Digitalis. *The Journal of Pharmacology and Experimental Therapeutics*, July, 1920, xv, No. 5, p. 427.

Observations were made upon frogs and cats to determine whether the action of digitalis is the same at high body temperature as at normal, and whether there is any change in the toxicity of the drug. Digitalis, in febrile animals, slowed the pulse, increased the blood-pressure, and increased the ventricular extrasystoles and inversion of the T-wave on the electrocardiogram.

High temperature alone was found to make the heart muscle more susceptible to the action of digitalis. Doses of this drug which are beneficial to the afebrile heart cases may be more than the lethal dose for febrile ones.

H. M. FEINBLATT.

BRET, J.: **Hypertrophy of the Right Heart. Measurements by the Method of W. Muller.** *Lyon Medical*, Mar. 1, 1914; abstr. in *Archives des Maladies du Coeur*, 1920, xiii, No. 6, p. 268.

The author isolates the two auricles and the ventricles and weights each of these parts carefully. The relation of these weights to each other and to the weight of the body provides the following indices:

(1) The relation of the weight of the left ventricles to that of the body averages 1:180. That is the "index of the heart."

(2) The ratio of the weight of the right ventricle to the left is .75, but varies between 0.47 and 0.67. This is called the "index of the ventricles."

(3) The ratio by weight of the right to the left auricle is 1.05. This is the "index of the auricles."

In the pneumopathies, such as pulmonary tuberculosis, kyphoscoliosis, chronic non-tuberculous affection of the lungs and all similar cases of chronic asphyxial states, the burden falls on the right heart and the latter hypertrophies. This is especially the case in chronic states that show cyanosis. In such cases the author has frequently found atheronea of the pulmonary artery, and in a few cases

hyperplasia of the adrenal. The author concludes that these chronic asphyxial states "are conditioned by certain anatomic and physiologic states of the lesser circulation and the general venous circulation and may induce endocrine disturbances."

M. H. KAHN.

WITTE, L.: **Histogenesis of the Cardiac Muscle of the Pig.** *American Journal of Anatomy*, May, 1919, xx, No. 3; abstracted in *Archives des Maladies du Cœur*, Feb., 1920, p. 77.

At first appearance, the cardiac tissue of the pig are cellular structures. These cells are fusiform and present terminal and lateral anastomosis, thus forming a net-work. The striations, at first scattered, appear before the discs. The discs show themselves at first like incomplete bands or striations which begin in the periphery of the fiber and progress little by little toward the center. They are always so closely placed that one does not find any nuclei between them. It is believed that the discs constitute reinforcement for the cells since they form when the latter are changed into fibers. The activity of the heart then becomes increased together with an increase in the muscular element.

M. H. KAHN.

COOKE, J. V.: **Complement-fixation in Influenza with Bacillus Influenzae Antigens.** *The Journal of Infectious Diseases*, Nov., 1920, xxvii, No. 5, p. 476.

Twenty-one cases of uncomplicated influenza and 14 bronchopneumonia cases were tested. The blood in all cases, except one fatal one, was obtained after the temperature had become normal. Four children and 9 adults (none of whom had any clinical symptoms of influenza) were used as controls. As a result the author states that complement-fixing antibodies can be demonstrated in the serum of a considerable number of older children and adults convalescent from influenza by the use of *Bacillus influenzae* antigens. These antibodies are much less constantly found in children between 1 and 5 years of age. No definite antigen relationship

could be detected between the sixteen strains of *Bacillus influenzae* with the serums tested. The results indicate that the influenza bacillus is pathogenic and infects many, if not all, patients with influenza. The complement-fixation test cannot furnish sufficient evidence, however, to justify the conclusion that *Bacillus influenzae* is the sole etiologic agent in influenza.

M. M. BANOWITCH.

SEYMOUR, R. J.: **The Relation of Catalase to Heart Activity.** *American Journal of Physiology*, 1920, li, 525.

Quantitative experiments, by Burge's methods, of the catalase in the ventricular muscle of turtle hearts give no evidence that there is any close relationship between the activity of the heart and the amount of catalase present. Hearts with a rapid rate as the result of warming, varied both plus and minus, as compared with controls, in catalase content, the greater number showing less catalase.

W. H. EDDY.

SMITH, J. D., AND WILSON, M. A.: **Comparison of Smear, Culture and Complement-fixation in Chronic Gonorrhea in Women.** *The Journal of Immunology*, Nov., 1920, v, No. 6, p. 499.

The gonococcus complement-fixation test is of undoubted value in chronic gonorrheal infections. In acute and early subacute infections it is on a par with the Wassermann test in the initial lesion stage prior to the development of the second. A nongonorrheic does not give a positive complement-fixation test. A gonorrheic may give a negative test in certain stages of the disease.

W. LINTZ.

SCHWARTZ, B.: **Hemolysins from Parasitic Worms.** *Archives of Internal Medicine*, Oct., 1920, xxvi, No. 4, p. 431.

The parasites studied by the author are species of *Ascaris*, of *Ancylostoma*, a hookworm belonging to the genus *Bustomum*, species

of *Trichuris*, species of two genera of anoplocephaline cestodes, and several other forms. He found that hemolysins from these worms were closely bound to the cells of the parasites, but could be liberated after thorough grinding of the work material. It cannot be stated at present whether the hemolysins are actually liberated from the parasite during its life or whether they are liberated only when the worms sicken and degenerate. It seems probable to the author that the hemolysins described are of pathological significance in helminthic infections.

T. HOWARD.

PELLINI, E. J., AND GREENFIELD, A. D.: **Narcotic Drug Addiction. I. The Formation of Protective Substances Against Morphin.** *Archives of Internal Medicine*, Sept., 1920, xxvi, No. 3, p. 279.

The serum of human morphin addicts and of dogs rendered tolerant to large doses of morphin was injected into mice and cats in an effort to determine whether such serum would protect these animals against doses of morphin ordinarily fatal. No such protective action could be demonstrated. The authors believe that the tolerance to large doses of this drug, which is conferred by the administration of gradually increasing doses, is not of the same nature as the immunity to bacteria or their toxins. Such immunity is probably exclusively dependent upon a protein antigen. The fact that different nerve centers exhibit varying degrees of tolerance, in animals tolerant to such an alkaloid as morphin, is additional evidence that the condition is not dependent upon the presence of a neutralizing substance in the blood.

T. HOWARD.

COWIE, D. M., AND PARSONS, J. P.: **Studies of Blood Sugar: Effect of Blood Constituents on Picrate Solutions. A Consideration of the Limitations of the Modified Lewis-Benedict Test.** *Archives of Internal Medicine*, Sept., 1920, xxvi, No. 3, p. 333.

The authors carried out the Lewis-Benedict test on samples of blood to which were added varying amounts of other constituents of

the blood. No effect upon the sugar reading was observed as the result of the addition of urea, ammonia N, uric acid, and four or five amino acids. The addition of creatinin in amounts exceeding the normal by 6 or 7 mg. per cent increased the sugar reading above its actual value. The picrate solution is extremely sensitive to epinephrin, reacting to 2 c. c. of a 1 : 4,000,000 solution. The authors suggest that the hyperglycemia reported to have been observed by means of the Lewis-Benedict test in emotional states may be in reality not a hyperglycemia but a hyperadrenalinemia. Acetone, to which all the ketone bodies are reduced in the course of the test, very materially modified the sugar readings. The picrate is 500 times more sensitive to acetone than it is to glucose in the blood. The addition of 0.05 mg. of acetone to 2 c. c. of blood was sufficient to increase the sugar reading from 0.101 to 0.114 per cent, while 100 mg. of acetone changed it to 0.250 per cent.

T. HOWARD.

KOLLS, A. C.: **An Indirect Method for the Determination of Blood-pressure in the Unanesthetized Dog.** *The Journal of Pharmacology and Experimental Therapeutics*, July, 1920, xv, No. 5, p. 443.

A cuff made of aluminum plate to fit the conformation of the thigh of the dog and fitted with a rubber compression bag is used here. The blood-pressure is transmitted to a mercury manometer and at the same time a graphic record is made by means of a sphygmograph.

H. M. FEINBLATT.

KOLLS, A. C.: **Continuous Blood-pressure Tracings in Man; An Apparatus.** *The Journal of Pharmacology and Experimental Therapeutics*, July, 1920, xv, No. 5, p. 433.

A method is described whereby continuous blood-pressure tracings can be made. The apparatus described consists of two cuffs connected by a stop-cock, which is in turn connected with a manometer and pressure bottle through an electromagnetic valve.

H. M. FEINBLATT.

SMITH, M. I.: **Studies in Anaphylaxis. The Relation of Certain Drugs to the Anaphylactic Reaction and the Bearing Thereof on the Mechanism of Anaphylactic Shock.** *The Journal of Immunology*, May, 1920, v, No. 4, p. 239.

Guinea pigs and rabbits sensitized to horse or ox serum, and treated subcutaneously with moderate doses of quinin preceding the reinjection of the specific antigen, have their susceptibility increased from three to ten times to the specific protein, as compared with control sensitized animals.

No appreciable degree of proteolysis could be demonstrated to occur *in vitro* by treating sensitized serum with the specific antigen, whether incubated alone or with quinin. The augmented susceptibility of sensitized animals to the specific protein when under the influence of quinin cannot, therefore, be referred to the well-known action of this drug on ferments.

Quinin added to Ringer-Locke solution perfused through the pulmonary vessels of sensitized or normal rabbits does not cause any noticeable constriction of these vessels. Specific foreign protein added to Ringer-Locke solution perfused through the pulmonary vessels of sensitized rabbits produces pulmonary obstruction to a marked degree. The altered susceptibility of sensitized animals to the foreign protein produced by quinin cannot be referred to any synergy between quinin and the anaphylactic process on the pulmonary circulation.

It has been suggested that histamin might be the causative factor of anaphylactic shock. On closer examination it does not appear that histamin is identical with the anaphylactic process, for the following reasons:

(a) Histamin does not produce in animals the temperature reactions observed in anaphylaxis.

(b) Histamin does not alter the coagulability of the blood, as is noted in anaphylactic shock.

(c) Quinin alters markedly the course of the anaphylactic reaction, by augmenting the susceptibility of sensitized animals to the foreign protein; it has no harmful effect on the course of intoxication with histamin.

(d) There is no relation between histamin and antianaphylaxis. Neither does desensitization influence the toxicity of histamin, nor

does the preliminary treatment with histamin alter the lethal dose of the specific foreign protein in sensitized animals.

A synergetic relation is shown to exist between histamin and the specific foreign protein in sensitized guinea pigs. This is probably best explained on the assumption that some points of attack of histamin and of the anaphylactic process are identical.

W. LINTZ.

C'OCA, A. F., AND MITSUJI, K.: I. On the Quantitative Reaction of Partially Neutralized Precipitin *in Vitro* and *in Vivo*. Studies in Anaphylaxis. *The Journal of Immunology*, May, 1920, v, No. 3, p. 297.

Experiments are presented which demonstrate that precipitin remains unaltered quantitatively and qualitatively in the guinea pig for several days and that it reacts in the animal body with its antigen in exactly the same manner as it does in the test tube. The experiments furnish further evidence that precipitin and "sensitizin" are identical.

The phenomenon of "anti-sensitization" (Weil) is not due to the action of anti-antibodies. It is a nonspecific effect the nature of which is obscure.

Passive sensitization with washed specific precipitates has generally failed in our hands.

The sodium carbonate extract or solution of specific precipitates do not contain free antigen but represents the whole precipitate in solution.

W. LINTZ.

SECTION ON PEDIATRICS

PORCHER, C.: **Milk Retention.** *Archives de médecine des Enfants*, Paris, Oct. and Nov., 1920, xxxiii, 569-592, 625-654.

When nursing or milking is interrupted for any reason, the secretion of milk gradually decreases in amount and finally ceases. This continued secretion without outlet results in increased pressure within the mammary gland and in the retention of milk. This retained milk is slowly absorbed, becoming watery, less concentrated and less opaque, whereas secretions retained in other glands become more concentrated. The opacity of milk is due to the fat and calcium caseinate. The amount of fat in milk varies considerably with the breed of cattle and the period of milking so that no conclusions in regard to the state of milk can be based on the fat content. Such conclusions must be drawn from the crystalline and colloid content. The author shows that variations in the quantity of the dried fat-free extract of milk, after calculating for the differences in the fat-content, are the most valuable criteria for drawing conclusions in regard to changes in milk or in the mammary gland. He gives a formula for obtaining this figure which he calls the "corrected fat-free extract" or "E. D. R.". This figure is remarkably constant for different samples from any given normal mammary gland either human or bovine. The E. D. R. of the milk from the four teats of a cow are different. Porcher found that, if one teat was not milked for a period of forty-eight hours, the resulting retention of milk caused a diminution in the quantity of milk that was obtained at the next milking as well as a reduction of the E. D. R. and the lactose content. This was probably due both to a diminution in the amount of milk secreted as well as to the absorption of the retained milk.

That absorption occurs is shown by the fact that if the teats or breasts are not emptied and retention occurs, the lactose content will decrease and lactose will appear in the urine. In a cow that is milked twice a day the E. D. R. is somewhat higher at night than in the morning because the period between the evening and morning milking is longer and retention and absorption occur. A diminution of the lactose content in the milk as well as the finding of lactose in the urine is evidence of retention of milk. Increasing the number of milkings, within certain limits, will increase the E. D. R. Incomplete and irregular emptying of the breast or udder tends to suppress secretion and to favor retention and absorption resulting in a lowering of the E. D. R. The lactose content of the milk decreases and lactose appears in the urine. In dogs, cats, and sows the E. D. R. is variable because of the incomplete and irregular emptying of the teats. A nursing infant should completely empty one breast before being allowed to suck the other one. Supplementary feedings to infants increases retention of milk in the mother's breasts. The author explains Denis' and Talbot's observation that the lactose of woman's milk decreases as the period of lactation increases, by stating that in the later period of lactation, nursing is irregular and supplementary feeding is common, so that retention and absorption of milk result. The E. D. R. and lactose content of milk diminish during menstruation because nursing is less frequent and more irregular at these times. Retention is the correct explanation of the changes in woman's milk during pregnancy, for no such changes occur in a pregnant cow that is regularly milked. When two breasts are of different sizes the smaller one is usually neglected by the infant so that retention occurs and the lactose content decreases. Weaning causes retention and lactosuria. The milk collected during the course of galactorrhoea is low in lactose because of the retention. Occasionally a woman applying for a position as wet nurse will not nurse her infant for twenty-four hours in order that her breasts may appear very large. This fraud may be detected, for the diminution of the lactose content of her milk will indicate that retention has occurred. Women who are ill should nurse their infants to prevent retention. The reports of chemical differences in the milk of nursing women and of cows which are ill, are probably to be explained by the retention that has occurred. If nursing or milking has been continued throughout the illness, the milk is unchanged chemically

unless the disease has affected the breasts or teats. If they are affected, nursing or milking is interfered with, retention results and chemical changes occur.

During retention the lactose content of the milk decreases, but the salt content increases so that the molecular concentration and freezing point are unchanged. The electrical resistance of milk during retention diminishes because of the decrease in lactose and the increase in sodium chlorid. The casein content diminishes during retention, due probably to digestion by the ferments of milk as well as by those of phagocytes. During retention, cells, similar in appearance to colostrum bodies, and also phagocytes are increased in number. The chemical and cytological findings in retention milk roughly resemble those of the milk from tuberculous udders.

W. C. DAVISON.

BLECHMANN, G.: **Syphilitic Jaundice in Early Infancy.** *Le Nouvelliste*, Paris, May, 1920, viii, 145-153.

Congenital syphilis may be a factor in any type of jaundice in infants and should always be considered. The so-called physiological jaundice of the first four days of life is more common in weak and premature children, and lues is a frequent cause of debility and prematurity. Physiological jaundice might be due to chilling and fragility of the red blood-cells or to the toxic action of syphilis on the liver. Jaundice due to obstruction or obliteration of the bile-ducts which reaches its maximum from the fifth to the tenth day of life may be caused by the pressure of syphilitic lesions such as gummata or to abnormalities. Toxi-infectious jaundice and hemolytic jaundice in infants are also occasionally luetic in origin.

Among the symptoms of congenital syphilis, Blechmann includes early craniotabes, enlarged epitrochlears, "snuffles," enlarged spleen (in the absence of tuberculosis), convulsions, congenital strabismus, habitual vomiting, infantile encephalitis, prematurity, debility, syphilids, pemphigus and certain distinct developmental abnormalities.

In all instances of jaundices in which congenital syphilis is suspected intravenous arsphenamin is recommended.

A. T. S. DAVISON.

PARK, E. A.: **A Case of Hypersensitiveness to Cow's Milk.** *American Journal of Diseases of Children*, Jan., 1920, xix, 48.

A child of six weeks who had, so far as could be learned, never before received cow's milk, became ill after taking about 10 c. c. (72.1 fluidrams). At ten weeks old he was tried with a teaspoonful of boiled cow's milk diluted with one teaspoonful of water, and after taking half of this amount he became ill with symptoms of anaphylaxis. Goat's milk produced no symptoms. The child had a number of severe attacks induced by accidental ingestion of very small amounts of milk, such as eating a crumb of bread in which milk was used. When he was 18 months old an effort to desensitize him was begun. Beginning with 0.001 c. c. of cow's milk and with gradually increasing doses he was rendered completely immune in three months.

The condition of hypersensitiveness appears in this case to be of prenatal origin.

HALLEZ, G. L.: **A Contribution to the Study of Anemia with Splenomegaly in Nurslings (2 Papers).** *Le Nourrisson*, Paris, May, 1920, viii, 154-171, and Jan., 1921, ix, 24-39.

Anemia in infancy may be divided into two principal groups: (1) the chlorotic type with low hemoglobin and a normal red blood-cell count, and (2) the toxi-infectious type which may in very rare instances be aplastic and have no medullary reaction but which is usually plastic and characterized by an increased number of nucleated red blood-cells, myelocytes and leukocytes. This latter group has been called by von Jaksch, Hayem and Luzet "infantile splenic pseudoleukemic anemia." Many other terms have been applied to it. It is always secondary to some primary condition such as bad feeding, rickets, syphilis, tuberculosis, malaria or leishmaniosis. The anemia often continues after the primary disease has been cured.

This pseudoleukemia is, with very rare exceptions, confined to infants under two years of age. The onset is insidious and it may require weeks or months for the parents to notice it. Apathy, weakness, loss of weight, delay in walking, occasionally slight edema, large abdomen, pallor of the skin and mucous membranes, an olive

tint to the skin, and rarely petechiae and epistaxis are the most prominent initial symptoms. The spleen may attain tremendous size. The liver is occasionally hypertrophied and sometimes there is general glandular enlargement. In the very mild forms, the blood-picture may not be striking, but when severe, the red count falls to 3 million, the hemoglobin to from 40 to 60 per cent, the color index is usually less than 1 but may lie between 0.5 and 1.4.

Anisocytosis, poikilocytosis and polychromatophilia are frequently seen. There are large numbers of nucleated red blood-cells (normoblasts, though megaloblasts and microblasts are not infrequent). The leukocyte count is usually high, up to 122,000. Rarely a leukopenia exists. 18,000 to 25,000 are the average figures in Hallez' series. The percentage of polymorphonuclear neutrophils is reduced, the eosinophils are proportionately normal. The lymphocytes and large mononuclear percentages are increased. Many transitional forms are found. A striking feature is the large number of myelocytes. This is an unfavorable sign. In very severe cases there are many Türk cells or large non-granular basophil mononuclears (0.8 to 2 per cent). The blood-picture closely resembles that of the fetus. The predominance of myelocytes, lymphocytes, or eosinophils has led some observers to divide pseudoleukemia into myeloid, lymphatic and eosinophilic types but these subdivisions are probably not justified, for mixed forms are common. These differences are perhaps due to the nature, intensity and duration of the primary disease and to difference in reactions of the individual infant. "Infantile splenic pseudoleukemia" is probably a clinical syndrome which is due to some cause as yet unknown, rather than being a fixed entity.

In the acute types, death may occur within a few weeks but the condition may continue up to six months. Marasmus, bronchopneumonia, diarrhea, tuberculosis, hemorrhage or infectious purpura frequently cause death. The prognosis is grave in proportion to the severity of the blood-picture. Hallez reports the complete clinical, hematological and pathological data of 2 of his cases. Both were full-term and had rickets.

At autopsy, there is an hyperplasia of the blood-forming organs which appear to revert to the fetal type and present a myeloid and lymphoid reaction. In addition there is an increase in connective tissue. These changes are well illustrated in the enlarged spleen

and in the bone marrow. The liver is somewhat enlarged and its structure has a fetal appearance. The lymph-glands and the thymus are sometimes hypertrophied and sections show lymphoid activity.

"Infantile splenic pseudoleukemia" is readily differentiated clinically from chlorosis and the anemia of scurvy. The primary condition should be sought so that it may be treated, i. e. syphilis, tuberculosis, malaria and leishmaniosis. Banti's disease can be differentiated because of its rarity in infants and by the leukopenia with lymphocytic increase, the hemolytic processes, the cirrhosis of the liver and the presence of ascites. Gaucher's disease or endothelioma of the spleen occurs in infancy but the course is gradual; it is often accompanied by hemorrhages, is familial and has a normal blood-picture.

Leukemia may be diagnosticated by the fact that it is always fatal, is comparatively rare in infants, and that the number of nucleated red blood-cells is not increased in proportion to the large number of leukocytes. Furthermore, leukemia is a primary disease and is often accompanied by hemorrhages and general glandular enlargement. Infantile splenic pseudoleukemia, on the other hand, may be cured spontaneously or by treatment; the nucleated red blood-cells are more numerous than the myelocytes, and hemorrhages into the skin and mucous membranes and general glandular enlargement are rare.

Treatment consists first in curing the syphilis, if present, by mercury and arsphenamin, or the malaria by quinin, and second in improving the patient's hygiene and diet. Iron preparations are efficacious; arsenic has been recommended, as well as the feeding of fresh and dried bone marrow. Splenectomy is irrational, although Giffin has reported success with this operation. Blood transfusion is useful in severe cases. Radiotherapy to the spleen has been found successful therapeutically. The author gives an excellent bibliography of this subject.

PORTER, W. T.: **The Seasonal Variation in the Growth of Boston School Children.** *American Journal of Physiology*, 1920, lii, 121.

The author's thesis is that the so-called generalizing method of collecting weights and heights of many children at one period in

the year, separating and tabulating figures for sex and age and then obtaining the median height and weight is faulty since it fails to take into account seasonal variations in these data.

He demonstrates that a seasonal curve may depart from the present standard curve by fully 2 pounds, a difference almost three times the average total growth for the first five months of the year. His deductions are that to determine the normal weight-growth the child must be weighed once a month or oftener to avoid the seasonal variation and that true curves of growth in weight demand that the monthly weights be distributed according to the months of the year, and not according to the months or years of age, as is the present custom.

W. H. EDDY.

OWEN, S. A., AND LAKE, N.: **Report of a Case of Antenatal Intestinal Obstruction, with some Remarks on Other Forms of Intestinal Obstruction in Infants.** *British Journal of Children's Diseases*, 1920, xvii, 115.

A female child, first seen when twelve hours old, had already given a history of having vomited twice since birth, and of having expelled a plug of mucus by the bowels. The delivery had been normal at full term. Examination of the child showed a well-developed infant, lying perfectly placid and in no distress, with a temperature of 95.8° F. (35.44° C.) but with normal pulse and respirations. The abdomen was distended. There was visible peristalsis and distended coils of intestines could be felt. There was no evidence of free fluid in the abdomen, no enlargement of either liver or spleen. The anal canal and rectum were empty and on examination the gut appeared to end blindly at the limit of reach of the little finger. The child was operated on three hours later. On a midline incision, enormous coils of small intestine, about the size of the adult jejunum, escaped with a small amount of clear fluid as soon as the peritoneum was opened. An obstruction was found to exist at about one foot above the ileocecal valve and was due to a band arising from the mesentery and descending to the upper surface of the bladder, where it appeared to blend with the urachus and so passed up to the umbilicus. There is little doubt that it was the remains

of the vitelline artery of the embryonic circulation coming as a branch from the superior mesenteric. There was no diverticulum of the bowel. Upon dividing the band, the underlying portion of the bowel was found to have a linear band of gangrene, with mucosa exposed. Between this point and the ileocecal valve, the intestine gradually narrowed down and lost the meconium staining. The large intestine was entirely diminutive and cream pink in color and as far as could be determined, it was patent. The child died. On a partial postmortem examination, it was ascertained that the entire gut below the site of obstruction was pervious.

The authors consider that the intestinal obstruction must have occurred *in utero*, the child being born with signs of obstruction such as great abdominal distention; symptoms of obstruction later manifested themselves through vomiting and absence of normal bowel movements. The large amount of hydramnios present (five pints) is in keeping with other cases of association of hydramnios and fetal abnormalities. The well-developed appearance of the child even just before death would make it appear that even acute intestinal obstruction in the child's antenatal existence need not be accompanied by symptoms. Had delivery been delayed a few hours longer, would spontaneous rupture of the bowel have occurred? Had spontaneous rupture of the bowel, followed by peritonitis and the concomitant accumulation of free fluid, occurred prior to birth, the diagnosis of fetal ascites would have been made in all probability and with justification, as the association of fetal ascites and hydramnios is not very uncommon.

The authors append a short review of other defects of the intestines reported in the literature.

M. B. GORDON.

RIVERS, W. C.: **Stigmata of Predisposition to Bone and Joint Tubercle (Paper II). Comparison of Subjects of Bone and Joint Tubercle with Normals.** *British Journal of Children's Diseases*, 1920, xvii, 140.

In a study of children and adults, both tuberculous and normal the author finds that in bone and joint tubercle, red and reddish hair is nearly twice as frequent as in the ordinary population. There is

nothing to note in the sex incidence, red hair affecting the sexes exactly equally in the normals and almost so in the tubercular. As to the situation of the tuberculous lesion, perhaps in the red-haired, the spine was rarely attacked. Hardly more of them than of the others had multiple lesions of tubercule. He found that a tendency to freckling was a little commoner in bone and joint tubercle than is normal. There was no clinical significance as regards dental caries between the red-haired children and the others. Ichthyosis was found to be at least twice as frequent in bone and joint tubercule as in nontuberculous children.

M. B. GORDON.

MARFAN, A. B.: **The Treatment of Ordinary (Noninfectious) Diarrhea in Artificially Fed Infants.** *Le Nourrison*, Paris, May, 1920, viii, 129-144.

The first essential in the treatment of diarrhea which is primary and due to food intolerance or digestive derangement, is to give the patients nothing but water for the first twenty-four to forty-eight hours. They should receive four ounces per kilo (2.24 lb.) of body weight when under the age of one year. Older children should take one quart daily. In place of plain water, the water in which vegetables have been boiled, may be used. At the end of twenty-four to forty-eight hours or as soon as vomiting ceases and the temperature returns to normal, food may be administered in small amounts. For infants under the age of six months, human milk, or asses' milk is the ideal food. When these are unprocurable, cow's milk in the form of "babeurre" is advisable. "Babeurre" is made by adding 2 ounces of cane sugar and a half ounce of rice jelly to a quart of skimmed butter milk. This is thoroughly mixed and then boiled. In some cases feedings of "babeurre" and lime water in equal amounts were beneficial. Next in order of preference to "babeurre" was powdered skimmed milk in the proportion of one teaspoonful of the powder to three ounces of water. Unsweetened condensed skimmed milk diluted with from 2 to 3 volumes of water is also useful. A proprietary product of cows' milk which has been peptonized and then modified to resemble the percentage composition of human milk may also be tried. As a last resort boiled skimmed milk is best.

For children older than six months, barley water, rice water or flour water may be substituted for the plain water as soon as the initial symptoms of vomiting have abated. Instead of these cereals, malted barley or flour, which consists principally of dextrins, may be given. An infant of three months may take malted barley. Cow's milk or "babeurre" may then be gradually added to the diet. The two cardinal rules in the treatment of diarrhea are the gradual, progressive transition from a plain water régime to one of cow's milk and the administration during this transition of 4 ounces of fluid per kilo of body weight or 1 quart daily for older children. For infants under six months, Marfan advises eight feedings daily for the first week and then 7 daily. To children older than six months he gives 6 feedings daily. If there is an exacerbation of symptoms at any time, food is withheld and only water given. The number and consistency of the stools have usually returned to normal by the twentieth day of this therapy.

For patients with diarrhea that is secondary to an acute infection or to syphilis or tuberculosis, the same principles apply, although they need not be so rigidly enforced. Frequently it is sufficient to give nothing but water for only a half day, or to restrict the usual amount of food or to substitute barley or rice or flour water for the milk of the diet.

Marfan prescribes two enemata of from 3 to 6 ounces of normal saline daily for the first two days of diarrhea and then one daily for the next two days. After that, he gives one every 2 to 3 days. He advises against purgatives. Bismuth subnitrate, naphthol or gelatin tannate may be given. If there is high fever, tepid baths are beneficial. As a general rule, infants recover more quickly at home, than in nurseries where they are separated from their mothers.

A. T. S. DAVISON.

COMBY, J.: Review of Rat-bite Fever (Sodoku) in Children. *Archives des Médecine des Enfants*, Paris, July, 1920, xxiii, 428.

Comby reviews the observations made by Sabater on rat-bite fever in a seventeen months old infant in Spain. The case reported by Packard (*Phil. Med. Times*, 1872) was one of the earliest descriptions.

The disease is little known in Europe though common in the far East. Schottmüller described *streptothrix muris rattii* as the cause of the disease, but several Japanese investigators have reported the presence of *spirocheta morsus muris* in the blood of rats inoculated with the blood of patients. The disease in rats is not usually fatal, but congestion of the lungs, liver, kidneys, ganglia, etc., are produced. In man the infection is caused by the bite of a diseased rat. As children are more exposed to rats than adults they are more frequently affected. After an incubation period of from one day to three weeks the tissues around the wound become red, edematous, and painful, with or without lymphangitis, adenitis, vesicles or even ulcers, according to the severity of the case. At the time, or some days later, a macular eruption appears, usually confined to the vicinity of the wound but occasionally extending all over the body. Usually during the febrile period there is an eruption of the buccal-pharyngeal membrane. After several days, or concurrently with the rash, chills develop, accompanied by a rise in temperature to 104° F. (40°C.) or more, prostration, drowsiness, joint and muscle pains, and occasionally dysphagia due to the inflamed throat. Some authors report anorexia, nausea, vomiting and frequently constipation, but not diarrhea.

These symptoms usually last a week, rarely longer, often less (from 2 to 3 days), as in Sabater's case. After a profuse perspiration the temperature falls to normal, the prostration and other symptoms disappear, and the patient appears to have recovered. But after 8 or 15 days there is a new attack with similar symptoms. There may be numerous recurrences for several months or even years before the patient finally recovers, although he usually is left anemic, weak and cachectic. There are no respiratory, circulatory, or nervous symptoms. There is a slight lymphocytic and eosinophilic leukocytosis. The mortality is 10 per cent.

Misoguchi describes four clinical forms depending upon the prominence of certain groups of symptoms and Miyake distinguishes three forms according to the temperature curve.

Since spirochetes are probably the cause of the disease, treatment with salvarsan, novarsenobenzol, quinin, mercury, arsenic atoxyl and methylarsinate has been recommended.

W. C. DAVISON.

COMBY, J., AND PALLEGUIN, J.: **Cured Cerebrospinal Meningitis in a Girl of Eight Months.** *Archives de Médecine des Enfants*, Paris, Sept., 1920, xxiii, 535.

A girl of eight months suddenly developed fever, malaise and strabismus. There were no contractures, convulsions, drowsiness, vomiting, diarrhea or rigidity of the neck. Lumbar puncture showed a purulent fluid with numerous meningococci. Twenty c. c. (5.42 fluidrams) of antimeningococcus serum were injected, followed by the same dose on the fourth day, 10 c. c. (2.71 fluidrams) on the seventh day, and 20 c. c. on the ninth day. There was a rapid cure with defervescence on the tenth day. The authors give a résumé of the literature on cured cases of meningitis in young infants.

W. C. DAVISON.

MOLA, A.: **On the Results of Artificial Feeding in the Nursery of Montevideo.** *Le Nourrisson*, March, 1920, viii, p. 65.

Mola calls attention to the tremendous mortality among infants, due principally to difficulty in feeding; under present conditions, with mothers working in factories and consequently unable to nurse their children, or with mothers unwilling to nurse their children because of false social standards, artificial feeding is becoming more and more prevalent and with disastrous results. After commenting on the impossibility of modifying cows' milk so that it can in any way replace breast milk, Mola proceeds to analyze the results of artificial feeding in 1026 children cared for from 1912 thru 1917 in the nursery of Montevideo. This nursery is built with large rooms, and is well-aired and lighted. It has a large interior court in which the babies are taken whenever the weather is propitious. There is a nurse for every 4 children, who is required to prepare their food, administer it, bathe them and change their clothes; stress is laid on not allowing the patients to lie in one position long, as infants require the psychic stimulus of being picked up, spoken to, and moved about if they are to remain in good health. The children on being admitted to the nursery are usually suffering from some ailment, more than half of them are in poor condition, a few seriously ill. They are isolated for a few days so as not to spread contagion, and

as soon as their condition warrants it they are discharged to the externe service, where their care in their own families is supervised by a doctor from the nursery.

In six years the nursery showed a mortality of 17 per cent among 1026 patients artificially fed. Mola analyzes this mortality from the point of view of (1) the ages of the patients, (2) the length of time the patients remained in the nursery, and (3) the weight of patients.

(1) Of children under 6 months of age the mortality was 38.6 per cent. Of children from 6 to 12 months of age the mortality was 15 per cent. Of children from 12 to 24 months of age the mortality was 3.9 per cent.

(2) Of the children who remained in the nursery ten, twenty or thirty days, the mortality was 7.7 per cent and 25.8 per cent respectively. Of the children who were in the nursery seven, eight or nine months, the mortality was 44.4 per cent, 50 per cent and 55.5 per cent respectively.

(3) Of 67 children weighing under 3000 grams (6 lbs.) 64.4 per cent died. Of 86 children weighing 3000 to 4000 grams (6 to 8 lbs.) 54.6 per cent died. Of 125 children weighing 4000 to 5000 grams (8 to 10 lbs.) 40 per cent died. Of 104 children weighing 5000 to 6000 grams (10 to 12 lbs.) 17.3 per cent died. Of 644 children weighing over 6000 grams (12 lbs.) 2.8 per cent died.

Mola concludes that artificial feeding in the nursery of Montevideo is fairly satisfactory, though by no means ideal; that in children under six months of age artificial feeding is disastrous, nearly one-half succumbing, while in those over a year of age the mortality is under 4 per cent; that the longer a child remains in the nursery, the poorer are its chances of survival, due to the influence of its surroundings and exposure to secondary infections; that hypothreptic and cachectic children when artificially fed have a very poor prospect as compared to that of a child weighing over 6000 grams (12 lbs.).

A. T. S. DAVISON.

GROVER, J. I.: **Stools and their Relation to the Feeding in Infants.**

The Journal of the American Medical Association, 1921, lxxvi, No. 6, p. 365.

Increased peristalsis is the cause of frequent stools. Irritating

fecal matter sets up peristalsis in order to discharge it the quicker. In fermentative indigestion the same excoriation seen on the skin outside of the anus, is prevalent in the mucous membrane of the intestine. Casein curds will also start peristalsis; they may even act as foreign bodies. They may occur, for instance, when a formula containing 1 per cent of fat and 2 per cent of protein is given. The curds may be prevented from forming if food is boiled. Mucous is produced for protection in the intestines.

"Infant stools are usually acid". They may be tested with litmus paper applied to the liquid or moistened stool. They are acid because of the greater proportion of fat, carbohydrate and protein in the food. Breast-milk stools are almost always acid. In skimmed milk the stool is usually alkaline. Starvation stools are small, few, sticky and dark, composed of detritus, bacteria and mucus. They very closely resemble meconium.

Protein stools look shiny when cut with wood, being dull on the outside. They are most typical from feedings of fat-free milk which is undiluted, and has been boiled hard for three minutes. They are semifformed, and watery when passed, and they dry out rapidly. There are from two to five a day. Bottle-fed babies have one or two, breast-fed infants two or four, a day. Protein stools are transparent and of the consistency of cold petrolatum. If a baby with diarrhea is fed boiled, fat-free milk, and the typical protein stool is passed, it shows a healthy rather than a diseased intestine. It is usually of an olive-green tinge. A small amount of fat in the food will render it opaque and grayish. Casein curds are rarely found in a high protein stool. If uncooked whole or diluted milk is fed, the casein curds are found embedded in stools composed mostly of soaps. In a warm room casein curds disintegrate and digest themselves, leaving slimy masses. The casein in breast-milk does not form casein curds, because of the small amount of casein and the ability of the child to digest human casein.

Fat is taken as a neutral fat; it breaks down into fatty acids, which unite with casein, forming soaps. But soaps are found in the stool even if a formula is fed containing from 2.5 to 3 per cent of fat and 1 per cent or less of protein.

If carbohydrates are added they will be digested and nothing added to the stool. When more protein is added, an excess of what the body needs is present, as solid matter, which does not break

down with heat and acetic acid. Where the fat is high and protein low in contents, there is a light colored soap stool, dry and constipated. There are rarely more than two a day, acid to neutral in reaction. A microscopical examination for soaps is misleading, if you do not know the feeding formula.

Curds of fat from a milk diet usually pass the pylorus and are broken into soap stools; if indigestion is present, mucus is excreted in excess, and forms many varieties of stools, usually the granular. Breast-milk stools are generally curdy with mucus. The abundant fatty acids probably cause the irritation, and the formation of mucus.

"Neutral fat is rarely present in stools, and when found, is a grave symptom of fat intolerance." Very often it is found to be a result of castor or olive oil or ointment, used on the baby, and not of milk. Fatty acids are often found, and not considered pathologic in breast-fed children; in cow's milk feeding they signify impaired fat absorption. Formic, acetic, butyric, lactic, succinic acids are irritating to the mucus membrane and soluble in water; they do not appear in microscopical examination. Stearoleic and palmitic acids are insoluble in water, and are easily distinguishable as red or orange globules when stained with sudan III.

Stools containing much fermented starch are loose, acid, light, brown, and excoriating. They contain much mucus. They are likely to be found in indigestion from starchy proprietary foods. Small brownish specks of the indigestible cellulose envelopes of cereal foods are often discernible.

Stools from sugar indigestion are not typical, but often very acid, excoriating, and watery, the solid parts being full of air bubbles. Usually action of acids on the bile pigments render them green. "Stools from sucrose or lactose fermentation are green, while those from maltose-dextrin preparations are brown".

Blood swallowed, or blood from gastro-intestinal lesions, discolor the stools into purple, almost black. In extreme constipation there may be excoriation of the rectum and anus, mucus and blood adhering to the outside of the stool. Blood is seen from polyps and fissures of the rectum and anus, or in the new-born in hemorrhagic disease, as well as in infectious diarrhea.

"Breast-milk stools are yellow to orange". Very young children pass orange colored stools on cow's milk, but rarely after five

months of age. Stools containing no bile are very light, almost white. Many forms of soap stools are very light. Unchanged bismuth renders them very pale. Crystals of bismuth can be microscopically detected. The meconium is dark brown or green, almost black; starvation stools are similar. Blood from the high parts of the gastro-intestinal tract make the stools purplish or actually black. Iron medication makes them greenish black; changed bismuth a dark slate blue, almost a gray black; charcoal or argyrol used in the nose or throat make them black.

Most soap stools turn green when exposed to the air for a few hours. "High protein stools are usually olive green, but are not abnormal on that account." Urine may color the stool pink, so may certain oxidation products of bile. Maltose-dextrin preparations render it brown, so does starch, meat, meat juice, broths, vegetables, and sometimes fat-free milk.

The odor cannot give diagnostic aid. Breast-milk stools usually smell sour; high protein stools, foul or cheesy; mucus, musty. Bacteria to distinguish the normal from the pathological, are not sufficiently well known.

SECTION ON ROENTGENOLOGY AND ELECTRO- THERAPEUTICS

COLLECTED ABSTRACT OF THE LITERATURE ON ROENTGENOLOGY FOR THE YEAR 1919

(By I. SETH HIRSCH)

THE HEAD

(Continued from page 369)

Dandy (Ventriculography Following The Injection of Air into the Cerebral Ventricles, *American Journal of Roentgenology*, Jan., 1919) states that the value of roentgenography in the diagnosis and localization of intracranial tumors is mainly restricted to the cases in which the neoplasm has affected the skull. In only 6 per cent of the cases did the tumor cast a shadow, and in these it was only the calcified areas which were differentiated by the roentgen rays from the normal cerebral tissues.

Also when the tumor has encroached upon the sphenoid, ethmoid or frontal sinus, the invading portion casts a shadow in the roentgenogram. Such shadows are due to the displacement of the normally contained air by tissues which are less pervious to the roentgen ray.

Although skull changes are shown by the roentgen ray in 45 per cent of the author's cases and are frequently pathognomonic, on the whole they represent late stages of the disease.

By filling the cerebral ventricles with a medium that will produce a shadow in the roentgenogram, an accurate outline of the cerebral ventricles could be photographed with roentgen rays, and since most neoplasms either directly or indirectly modify the size or shape of the ventricles, an early and accurate aid to the localization of intracranial affections would be obtained.

Methods.—In order to obtain a skiagram of the lateral cerebral ventricles filled with air, it is necessary to remove at least more cerebrospinal fluid than the contents of one ventricle and to replace this

fluid with an equal quantity of air. Before closure of the fontanel, one can readily make a ventricular puncture through the interosseus defect. After union of the sutures, it is necessary to make a small opening in the bone.

The exchange of air for cerebrospinal fluid must be made accurately. If the air injected is greater in volume than the fluid withdrawn, acute pressure symptoms will result.

Needless to say, owing to the lighter weight of air, the ventriculogram represents the ventricle farthest from the roentgen ray plate. To insure the best results the sagittal plane of the head should be parallel with the plate. Valuable assistance can also be obtained from anteroposterior roentgen rays. The head should then be placed so that the sagittal plane is vertical, preferably with the occiput resting on the plate. With the latter precaution a more even distribution of air on the two sides is obtained and the ventriculogram represents the anterior portions of both lateral ventricles. For special points in diagnosis additional anteroposterior views may be taken of the posterior and descending horns of the ventricle by placing the forehead on the plate.

Even in the few cases here reported ventriculography has proven of great practical value. For the first time we have a means of diagnosing internal hydrocephalus in the early stages.

Several possibilities are anticipated from ventriculograms in adults:

(1) The enlarged ventricle in internal hydrocephalus should be absolutely defined.

(2) Tumors in either cerebral hemisphere may dislocate or compress the ventricle and in this way localize the neoplasm.

(3) Tumors growing into the ventricles may show a corresponding defect in the ventricular shadow.

(4) A unilateral hydrocephalus may be demonstrable if the air cannot be made to enter the opposite ventricle.

In a later article Walter E. Dandy (Fluoroscopy of the Cerebral Ventricles, *The Johns Hopkins Hospital Bulletin*, Feb., 1919, 336, 29) suggests fluoroscopy of the cerebral ventricles. The results have been quite as striking from a fluoroscopic point of view as those seen on the roentgen ray plate. The ages of the patients examined under the fluoroscope have ranged from three months to fifty-five years. The ventricles were found to be almost as distinct in adults

as in infants and young children, though harder rays were necessary in order to penetrate the thicker skulls.

For the best diagnostic results a combination of two methods is often better and the fluoroscopic method combined with the plates is advocated; by proper movement of the head, anteroposterior and profile views or any part of one or both of the lateral ventricles can be studied, and a composite picture of the ventricular system obtained. The disadvantage of the fluoroscopic method is that no permanent or graphic record of the cases could be had. And further, the interpretations made at a fluoroscopic examination are necessarily hasty impressions and depend largely upon the individual's personal equation, especially when the observer's experience is limited and the normal and pathological not well established.

Each movement of the head temporarily disturbs this fluid level, which quickly reforms with rest, just as in pneumothorax. The movements of air in the ventricles are more difficult than in hydropneumothorax, because there are curves, angles and branches of the lateral ventricles and points of narrowing at the foramina. Since the lateral ventricles are paired and communicate only anteriorly through the small foramina of Monro, these difficulties become greater.

Beginning with a small amount of air in the descending horn of one of the lateral ventricles, by changing the position of the head one can observe the air passing into the posterior horn, then the body, the anterior horn through the foramen of Monro into the third ventricle. From the third ventricle it passes through the opposite foramen of Monro into the opposite lateral ventricle, and by reversing the movements of the head the air may be sent to the descending horn of this ventricle. The rapidity of transfer of fluid from one lateral ventricle to the other ventricle varies with the regular size of the foramen of Monro.

In advanced hydrocephalus much additional communication between the lateral ventricle results from large perforations in the septum lucidum due to absorption from increased intraventricular pressure. In normal or moderately enlarged ventricles there is an uneven distribution of air in the two lateral ventricles when viewed anteroposteriorly. Only in large ventricles with very large foramen of Monro or in which there are artificial openings in the septum lucidum, is the communication between the lateral ventricles ample

to give an equal distribution of air on the two sides without careful manipulations of the head.

In advanced hydrocephalus, the two cavities are practically fused into a single space, so that the fluid in the two sides quickly assumes the same level.

Several times air was seen in the cisterna magna indicating the patency of all the ventricular foramina, but so far it had not been observed in its passage through the aqueduct of Sylvius and fourth ventricle. Normal-sized ventricles were observed, and aside from the difference in size of the ventricles the air passes from one side to the other much more slowly, and more careful manipulations of the head are necessary to accomplish the transfer.

H. E. Potter (*Amer. Jour. of Roent.*, Jan. 1919, pp. 12-16) reports a case of hydropneumo-cranium with air in the ventricles, which occurred a number of days after a fracture of the frontal bone. Two weeks later, this air cavity had extended and become partially fluid-filled. With the entrance of fluid, the cavity did not shrink, but the air was gradually displaced by the fluid, and at this stage there existed a fluid-filled cavity very like a cyst. With the increase of gas in the cavity, there was a partial filling of the lateral ventricle with gas. From the completeness with which all the gas disappeared, it seemed as if it had been expelled as well as absorbed, since a nitrogen residue is said to persist for some time after the oxygen content of air has been absorbed.

Air insufflated into the cranial cavity, following fracture through pneumatic sinuses, could easily play an important rôle in the formation of certain traumatic cysts filled either with cerebrospinal fluid alone or this fluid mixed with hematogenous elements.

In the above case, it is a reasonable question whether the air in the subdural cavity did not gain entrance to the ventricle by the roundabout passage formed by the foramina of Magendie and Luseka, the fourth and third ventricles and the foramina of Monro.

Potter believes that many cases of intracranial air are overlooked because of the infrequency of *x*-ray examination two or three weeks after the injury, when pneumatic sinuses are fractured into. If this examination became routine, he has no doubt that in a short time we should have a complete knowledge of the hydrostatics involved.

Pancoast (A Roentgenologic Contribution to the Possible Cause of Hereditary Optic Atrophy, *American Journal of Roentgenology*,

Jan., 1919) states that hereditary optic atrophy, or Leber's disease, may be described as a hereditary condition of unknown origin characterized by a partial or nearly total loss of vision. It may be of sudden or gradual onset, affecting males more frequently than females and occurring at certain rather definite periods of life. The characteristic features upon examination are an absolute central scotoma, and, by the ophthalmoscope, a pallor of the disks, especially the temporal halves, without evidences of inflammatory changes such as exudates or hemorrhages. The retinal vessels are normal. Evidence points to a symmetrical retrobulbar etiological factor. The patient usually seeks the ophthalmologist because of failing vision. Leber suggested a neuropathic group of cases with additional secondary manifestations such as frontal headaches, vertigo, and epileptiform attacks.

The onset is usually quite rapid, but the time may vary from a week or two to several months between the first noticeable manifestations and the maximum loss of vision.

The earliest age for the attack is about the time of puberty. In males the condition is usually manifest in the second or third decade. In females it is perhaps more prone to occur at or about menopause.

Usually only the male members of the family are affected and the condition is transmitted through the female members, as is generally the case with familial diseases. When females are affected, they may be attacked at the same ages as males, but are said to be more frequently stricken at or near menopause.

Complete blindness is uncommon, the peripheral fields usually remaining intact, or contracted.

Whatever the cause, it must be retrobulbar, and if the chiasm is affected, or the tracts, it would have to be almost if not quite symmetrical, because of certain constant and fairly definite roentgen findings in several typical cases occurring in two different families and an apparent conformity between these findings and some suggestions as to the possible cause of the condition advanced by Fisher in 1916. The authors advance the hypothesis that the disease is due to a transient enlargement of the hypothalamus with enlargement occurring at different epochs in life.

There is a similarity between certain symptoms of pituitary disorders and the neuropathic type of Leber's cases—namely, frontal headaches, vertigo and epileptiform attacks. The pituitary func-

tions are intimately related to those of the sexual glands and might be expected to be especially liable to inherited tendencies. Leber's disease very frequently is manifest at or about the age of puberty, and in the female not infrequently at the time of menopause. At the sexual epochs there may be changes occurring in the pituitary body as physiological processes; these processes may be exaggerated in Leber's disease, with tumefaction. During pregnancy the pituitary body may become enlarged, and hemianopia may result. The relations of the pituitary body and the chiasm are very close, with only the diaphragm sellæ between; the latter may vary greatly in density and be so thin as to permit a very slight enlargement of the gland to impair the function of the nerve. Cases of Leber's disease with glycosuria have been reported. It is alleged that in some reported cases with pituitary growths a very early, slight transient papillitis has been detected.

Gerber (Some Observations of Mastoid Structure as Revealed by Roentgen Ray Examination, *American Journal of Roentgenology*, Jan., 1919) points out that an infection of the mastoid is one of the most protean types of disease with which we are acquainted. Specialists with wide experience have come to realize that every case of mastoid infection is a problem in itself; that the clinical course and the indications for surgical interference are widely varied; and that one case can very rarely be compared accurately and in detail with another. Each case presents a distinct problem and a distinct special study. The basis for this wide variation seems to be most probably the existence of marked fundamental difference in mastoid structure.

Cheatle divided all mastoid structure into two main groups, the Infantile and the Pneumatic types.

In such an infant mastoid, a lateral vertical section shows the outer wall of the mastoid antrum to be composed of two essential parts. There is an outer layer of compact bone, known as the outer antral wall, and inside this is a layer of so-called "fetal cells." Below, and external to the antrum, is the mastoid mass itself, which is generally of two types. In one, the mass shows more or less diploëtic structure. In the other it is extremely dense, with very little structure to be made out.

By the "infantile" type of mastoid, Cheatle means the persistence of that type throughout adult life, where the appearances

of the outer antral wall and the mastoid mass are practically the same as the above-mentioned conditions in infants. There are likewise two general types of infantile mastoid persisting into adult life.

Such a mastoid in the adult will present an entirely diploëtic condition of the main portion of the body of the mastoid, and an extremely thick and dense outer antral wall.

The second infantile type is the "dense form" as seen in adult life. This is not a very common type, however, and is seen only in 1 or 2 per cent of the temporal bones studied by Cheatle.

The common characteristic of these infantile types is the dense outer antral wall. The lateral sinus is generally much more forward than is common in the cellular type of mastoid. It may even reach the posterior meatal wall, or be found between the cavity of the mastoid antrum and the surface.

A third type of infantile mastoid is described by Cheatle, consisting essentially of a combination of the infantile and pneumatic types, with the infantile characteristics predominating.

In the roentgen ray study of infantile types of mastoid, the exact details of the mastoid structure cannot always be shown. This is obvious, because the penetration of the rays is obstructed by the thick wall, which in Type II is extended to a thickening of the entire mastoid. However, there is generally enough information available to be of marked clinical value and significance.

It is generally safe to assume that there is an infantile type present when the lateral sinus is seen far forward, when one finds a characteristic sort of cell distribution with only a few cells near the tip and a few back of the middle ear or only the latter. In the first instance we are dealing with a Type I infantile mastoid, and in the second instance with a Type II.

The third type of infantile mastoid, in which there is a combination of dense wall with scattered pneumatic cells has all the dangers of the pneumatic type with regard to spread of infection, and yet with none of the safeguards that will be mentioned later in discussing the pneumatic type.

The pneumatic type of mastoid develops from the infantile type by the projection and development of the antral cells into the mastoid mass through the outer antral wall. Cheatle divides the pneumatic types into three distinct groups, all of which have distinctive roentgen ray evidences.

The first type is the pure pneumatic type. This is the well-known type in which we see large numbers of pneumatic cells with thin walls, extending throughout the mastoid distribution. The antral wall, as a rule, is relatively thin, and the tip of the mastoid is usually large, with the larger cells in this portion. Most of the roentgen ray study has been concerned with this type of mastoid. Here the evidences of acute infection are generally very obvious. The cells lose their black aerated quality, and appear hazy, due to the secretion. The thin cell-walls become indistinct in outline, and later show the effect of softening or actual destruction. It is in this type that the perisinus and peridural abscesses are brought out clearly by their distinctive shadows in the neighborhoods of the lateral sinus and the squamous bone, respectively.

The distribution of the cells often brings on interesting complications. Very commonly the cells may extend far forward into the zygomatic process, so as to be in very close relation to the temporomandibular joint.

A total and complete destruction of the walls and cellular structure in the pneumatic type will often give rise to an appearance closely resembling the infantile type. In the infantile type it occupies a more forward position than in the pneumatic type. Often, however, the clinical signs will be of value in the differentiation.

The second pneumatic type is a combination of pneumatic and infantile types, with the pneumatic character predominating. This is the type in which the mastoid mass originally contained a large amount of diploë, which has been pushed downward by the development of the pneumatic cells extending from the antrum. Generally the course of disease in such a mastoid is the same as in the pure pneumatic type, but conditions will be complicated by reason of the presence of the infected diploëtic cells.

The third pneumatic type is the so-called "double-deck" mastoid. This is probably another one of the variations of development in mastoid with considerable diploëtic structure. Here a false inner table is produced, by reason of having an outer layer of pneumatic cells, with an inner deep layer of diploëtic structure.

The consideration of this last type brings out the important point that for a proper roentgen ray study of these various types of mastoid structure a simple flat plate of the mastoid region is not suf-

ficient. Such a plate may serve generally to bring out the ordinary types of infection visible in the pure pneumatic mastoid, but it will not disclose the complicating types, and will not clearly bring out the infantile type. A stereoscopic study of each mastoid is absolutely essential to the proper interpretation.

One of the points that impresses the observer in the study of structure is the fact that bilateral symmetry is by no means a fixed rule. Frequently a pure pneumatic type mastoid will be found on one side, and an infantile type, with dense mastoid mass on the other.

Another important point is the condition of the so-called "sclerosis", as detected by the roentgen ray examination. It has been the habit of roentgenologists generally to speak of a mastoid as "sclerotic" when very little cellular structure was visible. The term sclerosis, when properly used, can be applied only to conditions where there has been actual inflammation, with subsequent repair and new bone production.

The author concludes that in the infantile types, by recognition of their presence, a chronic infection of the mastoid can be prevented by early drainage of the antrum, regardless of the absence of the classical mastoid signs. If there is merely a middle-ear supuration, with definite drooping of the posterior-superior canal wall, and an infantile type of mastoid disclosed by the roentgen ray examination, the patient should be given the benefit of the doubt by early antral exploration.

(Concluded)

ALLISON, R. G.: **The Clinical Importance of the Different Types of Pulmonary Tuberculosis as Determined by Roentgen Examination.** *American Journal of Roentgenology*, March, 1921, viii, No. 3, pp. 103-106.

Allison summarizes his conclusions as follows:

(1) Pulmonary tuberculosis can be divided into clinical and non-clinical types with a high degree of accuracy by stereoscopic plates.

(2) Unless we make this division into the two types we are

putting our method on the level of tuberculin, which will not differentiate between infection with the tubercle bacillus and the disease tuberculosis.

(3) Negative stereoscopic plates can, with an occasional rare exception, exclude a clinical type of tuberculosis.

(4) Parenchymatous tuberculosis is a clinical type unless slight in amount and definitely calcified, and peribronchial tuberculosis is of clinical significance only where it conforms to the following qualifications: upper or middle lobe distribution, unilateral or more marked on one side as compared with the opposite, gross in amount and presenting a hazy outline with definite modulations.

(5) A negative diagnosis from the roentgenologist is of more value than a positive, in that, in the face of suggestive symptoms, a positive diagnosis can often be made by other methods, but the x-ray alone offers the only accurate method of excluding the disease.

BULLOWA, J. G. M., AND GOTTLIEB, C.: Roentgen-ray Studies of Bronchial Function. *The American Journal of the Medical Sciences*, July, 1920, clx, Part 1, No. 580, p. 98.

The studies were made upon dogs after injections of barium. With the aid of the fluoroscope the following movements were observed:

(1) If the left diaphragmatic bronchus and its branches are injected, it is seen to move laterally with each pulsation of the heart.

(2) Synchronous with respiration there is a bellows-like expansion and contraction of the trachea and bronchi, which is very obvious in the relaxed bronchus immediately after injection and especially if the anesthetic has not completely worn off.

(3) Immediately after the injection of the barium there is a long peristaltic wave (10 cm.) which seems to be a potent factor in the evacuation of the bronchi and trachea. The bronchus is seen to contract and dilate slowly, independent of cough, respiration and swallowing. It travels up the bronchial tree. This seems adequate to empty the bronchi and is too rapid to be attributed to ciliary movement. Injections of adrenalin made the bronchi smaller in diameter, both before and after injecting

barium. Muscarin injected intravenously induced bronchial spasm which an intravenous dose of adrenalin relaxed.

A. T. MAYS.

MOTTRAM, J. C.: **Histological Changes in the Bone Marrow of Rats Exposed to the Radiation from Radium.** *Archives of Radiology and Electrotherapy*, 1920, No. 245, p. 197.

Experiments on rats were made with radiation. The experiment animals were irradiated for twelve hours during the night in a box 15 x 9.5 inches. Varnished radium applicators (4 x 4 cm.) containing each 80 mgs. of radium bromid ($\text{Ra Br}_2 \cdot \text{H}_2\text{O}$) were placed at either end of the box, 9.5 inches from the center.

The control specimens of bone were mounted on the same slide as the experimental. The radiated bone showed a much deeper stain with iron hematoxylin, and more intense blue with eosin methylene-blue. This was due to a diminution in number of young recently divided and darkly staining nuclei, and of nuclei in the anaphase. The more differentiated and granule-containing cells presented no difference. There was also a decrease in the number of mitoses.

In radium workers similar conditions are found. Low polymorph blood content and anemia of an aplastic type are common.

These findings show an interference with the output of blood-cells from the bone marrow. The small fall in number of circulating polymorphs and a mild anemia has however been noticed only in a few cases. "In view of the fact that a harder type of x-radiation is every day being more largely used, perhaps effects on bone marrow will in the future be observed and require to be guarded against."

HANFORD, C. W.: **A Resume of the Year's Work with Radium.** *Illinois Medical Journal*, March, 1920, xxxvii, 168.

From the evidence adduced by a host of competent observers, Hanford is led to conclude that radium has established a distinct place for itself in the treatment of certain pathological conditions, prominent among them being cancer. He finds treatment with radium eminently satisfactory in uterine fibromata. In all cases of

small uncomplicated myomata and myopathic hemorrhages radium is the treatment of choice. In myopathic hemorrhages 100 per cent of cures can be expected. Permanent amenorrhea is, however, established if the treatments are continued too long or if the dose is too large.

The author cites several observers who obtained good results in the treatment of myelocytic leukemia and of goiter. Aikins of Toronto uses quinin diet in addition to radium in hyperthyroidism, while the author has obtained excellent results with radium alone in 3 such cases.

To achieve the best results from radium as much care, born of experience, must be exercised as in the application of the most potent drug.

M. KESCHNER.

REGAUD: Preliminary Ideas in the Practice of Radium Therapy in Regard to the Local Applications of Emanation and of Radium.
Paris medical, ix, No. 19.

The studies of the author have shown that in case of cancer there are advantages to the use of the ultra-penetrating rays. Regaud maintains that these are best produced by the emanations. Measurements are made in millicuries, i. e., one millicurie being the radiation from one milligram of radium element. The tubes used for emanations are capable of any desired shape and form and can be made very powerful if desired.

E. J. SKINNER.

SECTION ON NEUROLOGY AND PSYCHIATRY

HUMBERT, C. R.: **The Intraspinal Treatment of Neurosyphilis.**
Medical Record, Nov., 1, 1919, xvi, 726.

The writer's method of treating neurosyphilis is based on the following observations:

(1) Barabat (*Jour. Amer. Med. Assn.*, Jan. 19, 1918, p. 148) has shown that thirty minutes after the administration of 0.4 grams of salvarsan, 75 per cent is taken up by the body cells. Further, the serum contains five times as much arsenic as the clot.

(2) The amount of salvarsan in the serum injected is too small to be of any value. It is the serum—immune bodies and foreign protein—that does the work.

(3) Serum from blood which has been drawn during the "reaction" is more toxic to typhoid organisms than that drawn at other times. The author has noticed in a few instances that the blood did not clot after withdrawal.

(4) Akatsu and Noguchi (*Jour. Exper. Med.*, 1917, xxv, 349) have shown that the *Treponema pallidum* can increase its tolerance to salvarsan $5\frac{1}{2}$ times and to bichlorid of mercury from 35 to 75 times if these drugs are used in increasing amounts in media.

Humbert's technic is as follows: "Massive doses of one drug with sudden shifts to others in order to prevent the organisms of syphilis from gaining a tolerance, is the objective sought in the treatment. The patient is placed on the table, salvarsan is prepared and spinal drainage instituted. This diminishes the already increased pressure in the cerebrospinal fluid, allowing both physiological and mechanical passage of the drug through the choroid plexus and meninges before it is taken up by the body cells. The salvarsan

is now given intravenously. A reasonable time is allowed for the "reaction" to occur. If it occurs the blood is drawn off; if not, it is drawn off just the same and the serum is administered intraspinally in the usual way. The circulation of the cerebrospinal fluid makes subdural and intraventricular injections unnecessary."

Mercury is now begun and rapidly pushed to the limit. The author prefers injections to any other method of administering mercury. When salivation sets in, the blood is drawn and mercurialized serum is administered. This is repeated until the desired results are obtained. Iron, quinin and strychnin, to ward off the bad effects of the treatment, are also given internally. Throughout the course of treatment intraspinal injections are administered as often as a change to the other drug is indicated, provided the physical condition of the patient is favorable.

M. KESCHNER.

BECK, D. J.: **Compulsion and Depression** (Zwang und Depression). *Monatschrift für Psychiatrie und Neurologie*. 1920, Bd. xlviii, H. 6, p. 273.

Westphal defines compulsory ideas as concepts arising in a normal mind not caused by feelings or affective states, and prevailing against the patient's will. They are ideas which cannot be forced out of consciousness, crossing and baffling normal process of thought. The patient will always consider them as something alien to his normal consciousness.

The author however is of the opinion that in most cases there is a relation between compulsory and affective functioning, that reasoning is disturbed. He does not find it possible to make a clear distinction between compulsory and depressive conditions. Depressive mania and psychasthenia cannot be entirely kept apart. Compulsory ideas may occur, but may also be, in the acute as well as in the chronic form, associated with depressive symptoms. Emotions are often the immediate or indirect cause of the onset or aggravation. The clinical pictures given show the difficulty of judging these cases, especially in the acute phases and in their constitutional character. Patients with compulsory ideas will be found to be of a chronic depressive type. These individuals are of a melancholy disposition,

rarely inwardly happy; they have little joy in life; social gatherings are not frequented by them. A doubting attitude towards their own actions is prevalent, and the idea of their own worthlessness is common. They are not capable of forgetting small insults, injuries or mistakes. Genuine "Zweifelsucht" (suspiciousness or skepticism) and compulsion will at last set in.

Beck proposes to classify disturbances of emotional life under the heads of hysterical and depressive constitutions on the one hand, and paranoid disposition, caractère scrupulo-inquiet and neurasthenic on the other. The depressive and paranoid disposition may be combined. On the dividing line between the two he places acute melancholia as an exciting cause. The first type shows more depressive, the second more compulsory symptoms. He finds constitutional depression; reactive and recurring melancholia; depression combined with compulsory ideas; a chronic condition with over-emphasized ideas, in states of physical feebleness, exhaustion or emotion; marked periodicity; and aggravation during depressive attacks. The scrupulous and worrying characters may show depressive symptoms.

HEAD, H.: **Disorders of Symbolic Thinking and Expression.** *British Journal of Psychology* 1921, xi, Part 2, p. 179.

Speech may be disturbed "without of necessity producing grave intellectual defect, apart from the loss of those functions associated with the activities which underlie the perfect use of language." Speech is essentially an intellectual mechanism. In the gravest cases of aphasia the patient is evidently fully aware of his emotions. So far speech was considered a well-defined intellectual function strictly localized in some particular part of the brain. Studies on traumatic aphasia have shown that a lesion within an area on the surface of the brain, associated with the mechanism of speech, may produce in one case 'total aphasia', in another 'partial aphasia', 'motor' or 'sensory'; while in a third it may cause no obvious disorder of language. A fundamental error is made in ignoring the physiological changes intervening between the anatomical lesion and the psychical states with which it is associated. Anatomical changes are correlated with metaphysical conceptions of the forms assumed by physical activity. There is no reason to suppose that any groups of cerebral

functions correspond to 'the memory of words', 'reading' or 'writing', or even to 'speech' itself." Images are not a necessary and fundamental factor in speech. They do play a part in the use of words and numbers, but they greatly vary in extent of use. In certain bilateral lesions of the brain images may suffer, either alone or in association with true aphasia manifestations. "If the lesion remains strictly unilateral the phenomena are not those associated with 'mind blindness' or 'mind deafness'. The patient suffering from 'mind blindness' does not recognize the significance of an object, so long as he employs sight alone."

Many cases depend upon the type of memory. Amongst the English-born visual imagery prevails. The functions which are disturbed in aphasia and kindred defects by a series of the author's cases proved to be verbal defects, syntactical and semantic defects of various types. Many of the disorders are the result of the inability to recognize the nominal or verbal significance of symbols. This leads to confusion in the aim of action. For instance, an officer was unable to put together his belt when the slides had been displaced, or collect the material for a shave. Another patient could thread the quadrilateral frames for his bee-hives, if he brought back and forth the threads from side to side using each neighboring hole, but could not proceed from corner to corner. Symbolic thinking and expression, for instance, with the aid of number demands that words, numbers, pictures should be perfectly and voluntarily manipulated. In aphasia, conception of the structure and rhythmic balance of the symbol is defective and interferes with articulatory speech, as well as with internal verbalization.

In aphasia symbols in language and thought are affected, not all, but those used in a particular manner. The manifestations cannot be explained by destruction of sensory images. These may remain intact, although they cannot be used voluntarily as part of the symbolic mechanism of language.

"These researches show that the aspects of meaning inherent in the use of symbols may be separated by suitable lesions of the brain. Want of perfect recognition of verbal significance leads to a defective power of naming; whilst what I have called 'semantic defects' produce a loss of the general meaning of words, phrases, numbers and pictures."

BECK, H. G.: **Hypophyseal Disorders with Special Reference to Froehlich's Syndrome** (Dystrophia Adiposogenitalis). *Endocrinology*, iv, No. 2, p. 185.

The hypophyseal origin of the disease was definitely demonstrated by Cushing and Asher in hypophysectomized animals, in which obesity and genital hypoplasia developed. More recent experiments by feeding animals with the gland have demonstrated that the anterior lobe stimulates tissue growth, especially the skeletal, cuticular and subcuticular tissues, and that sexual instincts are early awakened, and complete sex development shortened by at least a third of its normal time. Where there is an interference with the anterior lobe, there is adiposity, underdevelopment of the skin, bones and sexual organs, and secondary sexual characteristics. The feeding of the posterior lobe does not stimulate growth nor development of the sex glands, as Goetsch has shown. The most striking symptom in hypophyseal dystrophy is obesity, with the fat accumulation about the hips, upper thighs lower abdomen, and mons veneris. The skin is remarkably delicate and white. Sexual development is delayed, and there may be permanent sexual infantilism. The menses are irregular or absent. In the male the tendency to reversal of sex type is more marked and there is the same disposition to sexual infantilism, and the absence of secondary sex characters. If the condition develops in adult life, retrogressive changes take place in the sexual organs with diminution in function, and the tendency of reversal of sex manifestations. Sugar tolerance is increased, metabolic functions are below normal, there may be headache, mental disturbances, and symptoms of diabetes insipidus. The degree of fat dystrophy varies with the impairment of function of the hypophysis, and in this respect is somewhat analogous to thyroid insufficiency. Many of the cases advance into a state of cachexia. In this condition also the interrelation of all of the ductless glands must be kept in mind and particularly in treatment, for most of the cases are not pure hypopituitarism, but symptoms of thyroid and ovary deficiency are also present. Anterior pituitary lobe has its greatest value in dystrophy adiposogenitalis and 2.5 grains (.1624 gram) are given two or three times a day with from 0.5 to 1.0 grains (.0324 to 0.65 gram) of thyroid.

The addition of ovarian or testicular extract was of doubtful

value. The polyuria of diabetes insipidus is best controlled by hypodermic administration of the extract of the posterior lobe, and infundibulin. The effect is remarkable but temporary. Whole gland may be given for the so-called pituitary headache, 0.5 to 2 grains three times a day, supplemented by injections of pituitrin. Where there are symptoms of both anterior and posterior deficiency, whole gland substance should be given. Operations are restricted to tumors of the region of the gland, or where there is hyperfunction, and gland therapy is employed where there is evidence of deficiency.

L. C. JOHNSON.

JANOWSKI, M. W.: **Neuralgias of the Head** (Sur les Neuralgies de la Tete). *La Presse Medicale*, Aug. 7, 1920, xxviii, No. 55, pp. 537-8.

The causes of headache are very diverse. The general causes, whether associated with fever or not, are too numerous to mention. Aches localized in the exterior of the skull also have a varied etiology, e. g. diseases of the ears, of the sinuses, of the teeth, and of the eyes, but the number of patients suffering with one of these conditions is gradually diminishing because the attention of practitioners has frequently been called to them.

Headaches caused by neuralgias of the trigeminal and occipital nerves, however, frequently are not cured because the etiological factors are not recognized.

Neuralgias of the occipital nerve result in pain localized to the posterior part of the skull. In the mild cases, the patient complains of pain localized in the inferior and lateral regions of the occiput. In more severe cases, the pain is localized over the posterior surface of the head, and is sometimes unilateral only. Usually, however, the sufferer with occipital nerve neuralgia complains of a headache which he does not localize in the occipital region. To detect the presence of the neuralgia, the occipital nerves should always be palpated at their point of emergence from the skull, on a level with the occipital sulcus. In healthy persons, moderate pressure here causes no pain. When a neuralgia of the occipital nerve exists, however, pressure causes pain which may be even intolerable.

Neuralgia of the fifth nerves is also a common cause of headache. The localization of the pain depends upon the branch of the nerve

affected. Usually the first branch is bilaterally involved, and produces pain in the forehead and temples. Pain in this location is usually believed to be vasomotor in origin. If pressure should be exerted over the supraorbital sulcus, however, the pain is very severe if there is a neuralgia of the nerve, and negligible in normal individuals. Often, the second branch of the trigeminal is also involved, and there is tenderness to pressure over the infraorbital foramen. In exceptional cases, there may be an involvement of the third branch, with pain on pressure over the points of emergence of the branches of that nerve on the outer surface of the lower jaw.

To avoid errors in diagnosis, systematic palpation of all points where nerves emerge from the skull should be employed in every case of headache.

Etiology.—The etiology of neuralgia of the fifth and occipital nerves is very extensive. The social condition of the patients, the season, the climatic conditions, the occupation, etc. are important.

Diagnosis.—This is easy, if a systematic examination for painful points is undertaken.

Treatment.—In all the cases of primary non-symptomatic neuralgia which the author has observed, he found that marked pressure over the tender points gives excellent therapeutic results. Together with nerve stretching, it constitutes an excellent method of treatment of sciatica. The technic of the method employed is simple. The masseur holds the patient's head firmly against his chest. He then applies the index finger of his right hand over the tender point, and exerts strong pressure intermittently, for about twenty seconds, the intervals being one second, and the time during which pressure is exerted being one second. During the intervals, the finger should not leave the tender point.

At first this process is extremely painful. After six days of treatment, an interval of two days is allowed to elapse, and a new series of treatment begun for six days. The number of such series necessary for cure depends upon the intensity of the neuralgia, and the time when treatment is begun. The most difficult cases are usually cured after five to nine series of treatments. During the first few days, the author prescribes aspirin and codein for the pain. The treatment is painful, but patients who have suffered for years willingly undergo this pain in order to be cured.

S. KAHN.

GUNZEL, R.: **Notes on Acquired Internal Hydrocephalus** (Beitrag zur Lehre vom erworbenen Hydrocephalus internus). *Zeitschrift fur die gesamte Neurologie und Psychiatrie*, 1920, O. Bd. xlii, p. 120.

Hydrocephalus internus may produce the symptoms of a process encroaching on space without manifestations, which will very nearly simulate brain tumor. Many cases in their last stages of acute meningitis may produce psychic defect. In the onset they may seem to produce functional disturbances.

The case under discussion was that of a soldier, which had long been diagnosed as hysteria. Clinical history gave enuresis up to the age of six or seven; he was a fairly good student and did not serve in the army before the war. One of his children died of convulsions, another from unknown cause when six months old. During the war his knee was injured and he had typhoid, being in the hospital for three and one-half months. A shell had caused him to be buried for nine hours. When he was released he vomited, and noticed that the right side of his neck and his arm were injured. In the Base Hospital he complained of rheumatic pain in the nape of the neck. There were stiffness, heightened reflexes, fluttering of the lids and trembling of the tongue. Rheumatism and bronchial catarrh were diagnosed.

The patient had frequent headaches and sometimes vomited, his gait was uncertain and he could not move his neck. Half a year later he had an attack of dizziness; after he would vomit, he would feel better. Another six months later the same condition recurred. In the country he had fewer attacks, and felt better, but could not do much work. Three years after his injury he was unable to rise, feeling stiff and shaky, and falling on his back when he tried to sit up in bed. He then continued to work and was unable to accomplish much, headache, dizziness, and vomiting growing more frequent. He was examined and showed sensitiveness of the two first trigeminal branches, and nerves of the neck with Romberg's sign and diminution of the abdominal reflex of the right side. He was admitted to the hospital and had severe headache in the back of the head, pain in the nape of the neck, blurring and double images in the right eye, anesthesia of the right arm and leg, frequent eructation and constipation. The occiput was sensitive on tapping, supraorbital sensitiveness. The neck could be moved passively with much pain.

Pupils were dilated but alike, no nystagmus. The right eye was kept half closed. Reflexes were normal in extremities and abdomen. The extremities were moved very uncertainly in the index, nose and knee-heel test, with open as well as closed eyes. The gait was swaying and the patient could move only when supported. The upper part of his body fell back. His right extremity was much weaker than the left. The eyes showed hemorrhage.

Lumbar puncture produced no liquid. There was uric acid, but nothing else in the urine. The Wassermann was negative. Five weeks later pain became intense, the patient crying out when the attacks set in. Lumbar puncture now produced clear liquid. Also the Wassermann was negative. Trephining was consented to after long hesitation. Then the pulse stopped at intervals and the patient died.

Near the foramen Magendi in the medulla oblongata a green tumor of the size of a pea, found at postmortem examination, and 70 or 80 c. c. light yellow clear fluid were removed. As general section was not permitted it was not possible to verify the possibility of the brain lesion being a tubercular process. Gerhardt (*Neurol. Central*, 1903) has reported a similar case of sticking together and obliteration of the foramen Magendi and a cyst in the choroid plexus of the fourth ventricle.

BICKEL, H.: **Origin of Hallucinations** (Ueber die Entstehung der Trugwahrnehmungen). *Monatsschrift für Psychiatrie und Neurologie*, 1920, xlviii, H. 6, p. 307.

The so-called "associative" hallucinations are most frequent in deliria, which, when caused by toxins or extreme exhaustions, are a state of irritation due to insufficient kinetic energy expenditure of the cerebral cortex. In consequence of dysfunction of involuntary expression—movements of consciousness—especially of the vasoconstrictors, the brain can no longer unload the psychophysiologic potential energy. This stasis of kinetic energy amounts to a state of irritation. In mild cases there will be a certain degree of flight of thought, in severer ones of hallucinations. It may be that hallucinations occur in grave cases only, because it may be that irritation of the rest of the cortex is transmitted to the sense-centers only when its irritation is very extreme. There may be other reasons.

The author is of the opinion that a general cortical disposition is the base of the occurrence of hallucinations. The immediate causes are various in bringing them on. There are associative and dissociative hallucinations. The disposition on which associative hallucinations arise is heightened irritation or irritability of the entire cerebral cortex. In toxemic psychoses the pathologic mechanism is well established. In psychopathic constitutions there may be various causes.

Dissociative hallucinations arise during sleep, in a somnolent condition, and in schizophrenia consciousness slacks and subconsciousness sets in. This slacking of consciousness causes partial dissociation of the function of the cerebral cortex. A consequence is that some of the minor psychic and cerebral functions display untoward autochthonous activity. In this state of the sensory nerve-centers hallucinations arise.

Associative and dissociative hallucinations are partly intellectual, by way of fancy, partly affective, by way of affective tone, or sensorial by way of irritation of the sensory nerves, or by subconscious impulse.

The author used the word "Trugwahrnehmungen" which signifies deceptive perception of the senses, rather than "hallucination", as generally employed. He avoids the strict distinction of hallucination and pseudo-hallucination.

HAMMETT, F. S.: **Gynecomastia.** *Endocrinology*, iv, No. 2, p. 205.

The term is applied to the occurrence in the male of a unilateral or bilateral mammary development resembling that of the female in its gross anatomical characteristics, with or without the production of milk. Since the incidence of gynecomastia in most cases is near the time of puberty, it may be considered to be associated with an abnormality of the endocrine stimuli concerned with adolescence. The condition is rarely hereditary and familial occurrences are also rare. There is found in many gynecomasts a simultaneous disturbance in function and structure of the procreative apparatus, but gynecomastia may or may not be accompanied by a disturbance of the generative instincts and functions. The mental and emotional reactions of the greater number of gynecomasts seem to lie along those

lines reserved for the opposite sex, and as a rule they give evidence of a preponderance of feminine traits. Animal experimentation has demonstrated that it is possible to produce in males an enlargement of the mamma at puberty resembling that taking place in the female, and that this development may proceed to milk production, in cases in which ovaries have been transplanted in a castrated male. This establishes the endocrine origin of gynecomastia. The source of the stimulus giving rise to gynecomastia in man is in all probability connected with the gonad hormone secretion, and whether this is due to a perversion of the hormone producing gonadal tissue, or whether there is present in these individuals functioning ovarian tissue, must be left to future investigations.

L. C. JOHNSON.

BRUHL, F.: **Luminal in Epilepsy** (Luminal und Epilepsie). *Munchener medizinische Wochenschrift*, Aug. 20, 1920, No. 34, p. 990.

The author has used luminal in the treatment of epilepsy since 1914. Most cases he has kept under control by a nightly administration of 0.1 gram (1.543 grains) luminal. He has used the remedy in some cases for years without any untoward effects. If cases are to react favorably to the remedy, the seizures are held under control soon after the administration of the remedy. He knows no method of determining which type of case will respond favorably to the treatment.

H. JOACHIM.

WEICHBRODT, R.: **The Therapy of Paralysis** (Die Therapie der Paralyse). *Archives fur Psychiatrie und Nervenkrankheiten*, 1919-20, lxi, 132.

Therapy is an unsolved problem in paralysis. The disease progresses constantly and ends fatally in from three to five years. In a case of Halbaus' the disease came to be stationary for fourteen years, and one of Alzheimer's lasted thirty-two. Short periods of improvement occur in 10 per cent of cases. Mendal says that it is the maniac type that shows this remittance. Spielmeyer does not

altogether deny curability, of course with some defects. Nonne has also reported such lasting improvement. This clinician says that many cases are incipient and imperfect, that they are well, as fully developed cases may show remittance. These cessations of symptoms in paralysis have been explained by Ehrlich as the condition in which spirochetæ, after a time of proliferation in the brain, form antibodies and the spirochetæ are killed. A new outbreak of the disease then occurs, and some spirochetæ, which are not killed, adapt themselves to the action of the antibodies. Ehrlich thinks that this is the reason why, in some cases, spirochetæ are not found. Jahnel then found that the seat of spirochetæ is the cerebral cortex, the ganglion cells and the cortex of the cerebellum. Jahnel also considers that the increase of spirochetæ occurs in gradual invasions, and then die off.

Winn, Robertson, and others, have proposed and used digitalis; Girard, nux vomica; Oeblick, Schule, Krafft-Ebing, a. v. quinin; Winslow and Fleming, zincum aceticum; v. Platenow, Brunst, Meynert, bromids; Foville, Vorin, Girma, ergotin; others opium, iron, tartarus sibiatus and argentum nitricum. In the middle of the nineteenth century aurum was used (Aur. kal. cyanat.), and also thyroid extracts. Donath made saline infusions, every three or four days, 500 to 1000 c. c. at 40° C. (140° F.). Ehrlich then used arsenophenylglycin, and their "606". Raeche has used salvarsan, but while he observed improvement, he was not altogether convinced of permanent effect. Swift-Ellis used salvarsan in many cases; so did many others.

The author is of the opinion that a cure has not been found.

MIRALLIE, M. C.: **Contribution to the Study of the Mode of Onset of General Paralysis** (Contribution a l'etude du mode de debut de la paralysie generale). *Societe medicine des Hopitaux de Paris*, July, 1920, Series 3, No. 25, p. 1004.

It seems that general paralysis may at first assume a tabetic type. It is in the beginning characterized by symptoms of neurosyphilis, such as fulgurating pains, Argyll-Robertson unequal pupils, tendon reflex exaggeration, forms of dementia, which come on quickly. The occurrence of tendon reflex exaggeration is specially stressed.

INTERNATIONAL MEDICAL DIGEST

Vol. II ·

JUNE, 1921

No. 6

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	482
Section on General Medicine - - - - -	483-530
Section on Laboratory and Research - - - - -	531-544
Section on Pediatrics - - - - -	545-550
Section on Roentgenology and Electrotherapeutics - - - - -	553-562
Section on Neurology and Psychiatry - - - - -	561-576
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-xviii
Index of Subjects - - - - -	xviii-iii

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1921, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEHAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLOOM
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

JUNE, 1921

No. 6

SECTION ON GENERAL MEDICINE

ELSE, J. E.: **Paget's Disease of the Breast.** *Northwest Medicine*, 1921, xxi, No. 2, p. 27.

Paget's disease of the breast is not common, and one of the most fatal forms of cancer. The name is used indiscriminately by many surgeons and pathologists for simple eczema, eczema secondary to carcinoma of the breast or other forms of carcinoma of the nipple, or even for melanocarcinoma secondary to eczema, involving the nipple and areola, and then a carcinoma springing from the epithelium of the lower end of the milk duct develops. The author considers less than three hundred of the cases reported in literature as really belonging under this head.

In the onset there is a round cell infiltration of the corium with desquamation of the surface epithelium. The pegs of the malpighian layers become elongated and broadened, as the epithelial cells covering the pegs vacuolarize. They appear very large and hydropic. The nucleus is either swollen or shrunken, and may be eccentrically situated. The epithelial cells are not hornified. This and their loss of spines promote desquamation. The surface grows moist; small ulcerations appear; the discharge may become purulent. The distended blood-vessels cause some edema. The epithelium gradually grows thinner. The pegs in the malpighian layer become shortened. In time the process extends into the milk ducts at the external orifice. Hyperplasia fills the ducts with epithelial cells, sometimes with papillomatous arrangement. The duct walls

giving way, the cells grow in an unlimited manner, infiltrating the surrounding tissues, extending into the blood-vessels. Metastasis sets in before clinical manifestations permit of recognizing malignancy. In fact, it is doubtful, in view of the slow growth, that Paget's is a malignant disease. It is not known at what stage it becomes malignant. In the author's cases there was no accumulation of cells with a distinct border as should exist in a benign tumor. Clinically the disease, in the beginning, presents a chronic eczema. The surfaces become rough, scaly and slightly reddened. The secretion is at first serious, later more or less purulent. The lesion looks moist on the nipple and areola and often on the surrounding skin. The surface is rough and nodular. The nipple grows smaller and disappears. After it has become clinically malignant it runs the course of other cancers located deeper in the gland, but it ulcerates early, has a tendency to metastasis and recurrency after operation.

Pathologically this cancer is of the cylindrical celled type, usually solid, but sometimes glandular. Epithelioma does not develop. The disease occurs between the ages of 40 and 60 in breasts that have been nursed. It does occur in virgins and once it was reported in the male breast. Infection and traumatism are given as causes. Every eczema of the breast must be carefully treated.

McCULLOUGH, J. W. S.: *The Necessity of a Publicity Campaign against Cancer.* *Public Health Journal*, 1921, xii, No. 4, p. 145.

Cancer has increased from 65 per 100,000 of population, to about 77 per 100,000; tuberculosis, under the same conditions of diagnosis and mortality records, has decreased from 102 to 78 per 100,000 during the last decade. Aside from influenza, during the last few years, cancer stands at the top of the death-dealing affections. In 1919, 2182 persons died of cancer; in Ontario, in the last ten years, 19,120. Hoffman of the Prudential Insurance Company, dealing with many countries, including the United States, finds cancer increasing, and in 1915 amounting to 80,000 deaths per year in the United States.

The disease proves fatal at a time when the man or woman is of greatest service to society. It is the fourth in our table of

mortality. One in 8 women, and 1 in 14 men die of cancer. It is necessary to teach the public that cancer in its early stage gives rise neither to pain nor ill health. Any lump or mass on a woman's breast after forty, any, even trivial, bleeding after the change of life, any wart or sore on the lower lip in a man of forty-five, any sore tongue, any bleeding from the bowel after forty-five should be known to need treatment. Warts, moles, or growths in the skin liable to irritation should be removed and irritation of the tongue and cheeks from jagged teeth, or the lower lip by clay pipes should be avoided. All the facts on cancer should be given widest publicity.

PETTIT, J. A.: **Bearing of the Cancer Problem on the Prolongation of Human Life.** *Northwest Medicine*, 1921, xxi, No. 2, p. 25.

The author states that since 1890 owing to Lord Lister and Pasteur the average of human life has been raised from thirty years to forty-five years. This is due to antiseptics, asepsis, surgery, vaccines, food hygiene, temperance, etc. The statistics show however, that cancer causes 5 per cent of all deaths after the age of thirty. Cancer, in the main, develops during later life. It has been lately more carefully diagnosed, and as more people live to be over thirty, more cancer is found. The statistics have, therefore, shown increased frequency of cancer. One woman out of every eleven and one man out of every thirteen dies of cancer. Probably 85 or 90 per cent of those who acquire cancer do not ultimately recover. An analysis of 10,000 postmortem examinations of cases dying from this disease has shown that in 19 per cent the cancer was still primary and at its original site, but not having formed any metastasis. Breast cancer, however, had formed metastasis in 97 per cent, that of the cervix almost as often. The cancer of the fundus, the gall-bladder, the urinary bladder, and especially that of the sigmoid, did not form metastasis as frequently. The author urges operation and early recognition, before the metastasis can form. Errors from spreading cancer cells by manipulation and during the operation must be cautiously avoided. Radiotherapy has a limited field of usefulness in these cases, although it is most potent. Radium has a destructive influence upon the nucleus of

the cell. The nucleus is destroyed and cell division ceases. The growth no longer exists as such. The x -ray has an influence on the nucleus as well as the protoplasm. It seems to produce a degree of fibrous infiltration which is not only inhibiting to the growth of the tumor, but also checks metastasis. The skin acts as a screen and reduces the effectiveness of the average radioactivity.

The author thinks that the average of human life may be raised to sixty years if cancer is better combatted.

NEWMAN, B. T.: *Shop Standards and Fatigue.* *Modern Medicine*, 1921, iii, No. 2, p. 93.

"Undue fatigue, wherever it occurs, must be regarded either as a symptom of disease, a sign of misdirection or waste of energy, or a reliable index to unhygienic working conditions of shop or factory reducing the efficiency of the worker." Workmen have to be fittingly placed if adverse mental processes are responsible for over fatigue, or treatment inaugurated. Overcrowding or poisoning of the air from manufacturing products in the workroom is a social wrong; so is speeding up of work. Over-fatigue is caused by all these factors as well as by monotony.

It is necessary to clearly understand the physiological limit in industrial work in order to eliminate or reduce fatigue to the point where neither retardation of production nor increase of cost is incurred.

In long continued use of a muscle, or group of muscles, constructive and destructive metabolism of the body on the one hand creates in the muscle waste products such as carbon dioxid lactic acid, that is, a chemical change. This muscle-waste accumulates faster than it can be removed, causing a sort of clogging of the muscle, and a diminution in the amount of oxygen and glycogen supplied thereto. The direct causes of fatigue are those associated with muscular strain, which may arise from continuous lifting, for instance, in loading pig iron, from long standing, as with weavers operating several looms, or from cramped positions as with people operating machines with the foot, or in continuous faulty position, as with clerical workers, accountants, etc., all without intervening days of rest. Noises, vibration from machines, excessive

temperature, high humidities, extremes of temperature, eye-strain from glare or gloom, are but examples. Air dustiness in abrasive manufacturing, grinding, polishing and sandblasting produce fibroid changes in lung tissue, restricting the normal function of the lungs, and making them fertile soil for tuberculosis. Fumes, gases and poisons of innumerable kinds break down cell life and create undue waste, overcharging waste removal, and inhibiting normal function. Inadequate and unsanitary toilet and drinking facilities, the lack of rest rooms for women workers, and rest periods for operatives engaged in heavy labor, unsympathetic management, unattractive or repulsive workrooms, facilitate the spread of epidemic diseases and unscientific placement of employees. "Unhygienic conditions, and lack of medical and surgical relief to note, reduce or correct physical disabilities or to treat minor ailments are capable of retarding maximum production." Every worker taken into employment should be examined and placed as to physical ability, and reexamined and replaced, if necessary. Next the job should be examined to find out just what mental and muscular ability is required for maximum efficiency and output. The plant should be thoroughly examined as to conditions injuring the health of the men and reducing production.

MOTZFELD, K.: **Treatment of Diabetes** (Behandling av diabetes). *Norsk Magazin for Laegevidenskaben*, April, 1921, No. 4, p. 249.

During the last three years and a half special attention has been paid, at the University Clinic of the State Hospital at Christiania, to the starvation treatment and total dietary restrictions. But to avoid unnecessary prolongation of the fasting period the carbohydrate tolerance has not been determined on an exclusive carbohydrate diet. Blood-sugar determination is very important. Fifty-four of the author's patients whose average age was forty-four years were treated by the old method from 1912-1917. Another group of 77 patients (from 1917-1920) was subjected to the more restricted dietetic treatment. They had an average age of thirty-six years, and were of a severe type. The first group, at discharge from the hospital, had no glycosuria and ketonuria, in 44 per cent, 24 per cent had glycosuria and ketonuria; 13 per

cent died in coma. Those treated by starvation had glycosuria and ketonuria in 9 per cent and were without it in 79 per cent. In Central Europe food scarcity during the war has tended to decrease the mortality from diabetes considerably. As a preliminary test for acidosis and beginning coma the author noted the time the patient could hold his breath. The modern treatment is not new. Even in the days of Rollo, (1796) these principles have been maintained by clinicians, but were not so vigorously enforced as today.

TIECHE, M.: Catarrh of the Male Urethra of Non-gonorrheal Origin, and Its Treatment with "Akatinol" (Ueber Harnrohenkatarrhe nicht gonorrhöischer Natur des Mannes und deren Behandlung mit Akatinol). *Schweizerische medizinische Wochenschrift*, 1921, Jg. 51, No. 4, p. 84.

The differential conditions in the various non-specific urethrites are by no means clear. Even simple traumatic cases are complicated in their etiology. Various foreign bodies introduced into the urethra, and phosphaturia and oxaluria (by the friction of small crystals) cause irritation and urethritis. Furthermore, they may be caused by continued traumatism in horseback riding, bicycling, etc., from pressure on the muscles of the buttocks, or from congestion, especially in the posterior part. This may result in a catarrhal secretion due to saprophytes plus trauma. During treatment chemical and thermic applications may give rise to this type of irritation, for instance, 20 per cent. protargol injections, onanism, coitus interruptus or too frequent normal sexual intercourse. In genuine traumatic urethritis there is a typical lack of incubation period.

Distress is rapidly augmented and becomes more intense as the irritation increases but disappears rapidly.

Herpes, gout and diabetes sometimes enter into etiology, as do also some remedies and some kinds of food taken in excess. It seems to the author that sensibility of the mucous membranes of the nose and pharynx, for instance in hay-fever, is accompanied by unusual sensibility of the urethra. In post-gonorrheal urethritis in which no gonococci are found, there is probably a sort of allergy, caused by toxins and constant chemical irritation.

Typhoid, staphylococcus infections, influenza, acute exanthema and syphilis cause a type of secondary urethritis. The primary focus is almost invariably located in the prostate, in the seminal vesicles, or in some other part of the upper urinary tract.

Caution is necessary and judgment as to etiology, when one thinks of the great number of various microorganisms which have been found in the urinary tract, and only if large amounts of gonococci and the typical incubation period of from three to six days are found can a case be pronounced gonorrheal. Borchhardt has shown experimentally that staphylococci from the male genital tract brought into a healthy urethra combined with staphylococci from the vaginal secretion, may initiate urethritis. The author in the city polyclinic has often observed this type of venereal disease. A girl would transmit it in one case in the form of gonorrhea, in a second case in the form of a suspicious catarrh without gonococci, but containing diplococci and rods. Several non-gonorrheal urethrites may be traced to the same source. This tends to prove the infectious nature of the disease. As in other infectious diseases, there is a multiplicity of cases. Prognosis in these cases is usually favorable. Waelsch describes a more vicious similar affection. It has a period of incubation lasting from six to twenty days. There is little irritation, little suppuration, and usually only slight pasting together of the orifice. Clouding of the urine is slight, even following alcoholic and sexual excess. The bacterial flora is not constant; there may be a few rods or cocci, or no microorganism. It is very hard to influence the condition by the therapeutic means.

WEBB, G. B., FORSTER, A. M., AND GILBERT, G. B.: **Postural Rest For Pulmonary Tuberculosis.** *Journal of the American Medical Association*, March 26, 1921, lxxvi, No. 13, p. 846.

The authors advocate rest in bed with the patient lying on the affected side. They state that by so doing the involved side is put more at rest than if that side is up and the unaffected side down.

The movements of the chest and of the diaphragm have been studied with the fluoroscope in persons lying on one side. The ribs of the recumbent side are close together, and there is less motion of this side than of the uppermost side. The diaphragm on

the side of the recumbent lung is seen to make greater excursions than that of the uppermost lung.

Comment.—The authors have had few patients in whom they could detect no change in signs or symptoms referable to the advice to lie on the active side. They have had several patients in whom improvement was noted, but resort to pneumothorax was necessary on account of the far advanced condition of the bad lung. In general, far fewer patients have needed treatment by pneumothorax than formerly.

In many patients, signs of cavitation in the upper lobe have entirely disappeared.

R. H. BENNETT.

STEEL, W. A.: **Sodium Citrate Treatment of Thrombo-angiitis Obliterans.** *Journal of the American Medical Association*, Feb., 1921, lxxvi, No. 7, p. 429.

The general plan of the treatment has been to increase the capillary hyperemia and encourage the formation of a collateral circulation, namely: (1) elevation of the leg and exposure to dry heat; (2) administration of vasodilator drugs—potassium and nitroglycerin; (3) Bier suction cylinders; (4) intravenous and subcutaneous injections of drugs to lessen blood viscosity—Ringer's solution and sodium citrate; and (5) femoral vein ligation and arteriovenous anastomosis. Operative measures have proved failures.

The Intravenous Sodium Citrate Method.—The author has employed the sodium citrate method for the last three years with encouraging results, using the following technic:—During the first month the patient is kept in bed with legs constantly under a hot electric light bath at 110° F. (43.33° C.); 250 c. c. of two per cent sodium citrate solution is given intravenously every second day. The second month the interval of injection is lengthened to every third or fourth day; daily leg massage is given, and the patient put in a wheel chair, with the feet hanging down, a short time each day; or, if the case is not advanced, some walking is allowed. The intervals of injection are now gradually lengthened until at the end of a year the patient gets one every two weeks. Increase in walking is permitted as the symptoms and the functional

collateral circulation appears. Potassium iodid, 10 drops three times daily, is given during the whole course. The length of the treatment is regulated by the results obtained in establishing a functional collateral circulation.

The effects of this plan of treatment have been: (1) relief of pain after the second injection; (2) the checking of gangrene and a spontaneous amputation of the dead tissue; (3) healing of indolent, painful ulcers; and (4) a slow but sure establishment of a collateral circulation.

Six patients in all have been treated. Two have resumed their regular occupations; one is walking around again functionally able; one with a previous leg amputation has resumed his occupation as a playwright; one is progressing satisfactorily; and one, affected very severely, walked after one year of treatment, but after four months suffered a relapse and is now yielding to a second course of injections.

R. H. BENNETT.

KINGERY, L. B.: **The Etiology of Common Warts. Their Production in the Second Generation.** *Journal of the American Medical Association*, Feb. 12, 1921, lxxvi, No. 7, p. 440.

The author assumed that the ordinary warts were of an infectious origin and proceeded on the theory that the causative agent was a filterable virus. Two years ago the first series of experiments was begun. Ordinary lesions of verruca vulgaris were removed by curettement, ground up in a mortar with a small amount of saline and the mash passed through the finest Berkefeld filter. The sterility of the filtrate was tested and proved to be negative. The remainder of the filtrate was injected intracutaneously into several human subjects. After an incubation period of from four to eight weeks, extremely small papular lesions made their appearance at the sites of the injections. These lesions were identical, both clinically and pathologically, with the ordinary wart.

The lesions thus obtained were then removed as the first lesions had been and treated in the same way. After an incubation period of approximately six months, extremely minute papular lesions began to appear at the exact sites of the injections. They

increased in size until they became about the size of a split pea. Histological examination revealed a picture virtually identical with Unna's description of the changes occurring in these lesions.

Conclusions:—(1) The demonstration of a filterable virus for warts by Wile and Kingery is further substantiated by their production in the second generation.

(2) The period of incubation from the time of inoculation to the development of well defined lesions is apparently much longer than pertains to other filtrable viruses.

R. H. BENNETT.

MCCORD, C. P., AND KILKER, C. H.: **Zinc Chlorid Poisoning: Report of Outbreak among Workers in a Wood Preserving Industry.** *Journal of the American Medical Association*, Feb. 12, 1921, lxxvi, No. 7, p. 442.

The principal woods treated are railroad ties of hard and soft wood. The principal chemicals used are: (1) tars and creosote because of their ability to render wood water-proof; and (2) zinc chlorid because of its action as a fungicide and a fire repellant.

Nature of the Lesions.—Seventeen patients were examined. Four types of lesions were found of which three were due to tar as follows: •

(a) Tar dermatitis was due to the use of benzene, and light and heavy coal oils used in "cleaning up" (2 cases).

(b) Tar acne was due to the accumulation of tar in the hair follicles.

(c) Tar cancer was present, and in 2 cases, lesions were exhibited suggestive of tar worker's or "chimney sweep" cancer. The quick disappearance under treatment makes one hesitate before making a diagnosis of tar cancer.

(d) Zinc chlorid burns were noted. In addition to the above all patients presented multiple lesions of the fingers, hands, forearms, and rarely of the legs. All patients gave a history of slight injury in the involved areas. The typical lesion was a small opening in the skin, usually the same shape and size as the antecedent injury. The surrounding skin appeared to be normal, but it was found to be readily removable. On removal of the skin the under-

lying tissues were white and bloodless and in the center was a cylinder of escharotic tissue. Some of these lesions were painful and others were not. In seeking the causation of these lesions it was found that: (1) Antecedent injury to the skin appears to be necessary; (2) after initiation of the lesion, repeated exposure to zinc chlorid solution in saturated form is necessary; and (3) the irritation from the tar fraction of the treating solution is a factor in the severity and progress of the zinc chlorid burn. In the treatment the escharotic tissues were removed and the area filled with sodium bicarbonate alone or in combination with petrolatum. In order to prevent the occurrence of the lesions flexible "lineolated" canvas gauntlets were used and overalls were worn. These were found to be impervious to the solutions used. The use of these garments has caused the disappearance of zinc chlorid burns in the plant.

R. H. BENNETT.

MARANON, G., ET BONILLA, E.: **Clinical History of a Case of Fatal Obesity** (Histoire Clinique et Autopsie d'un cas d'obesite Mortelle). *Revue Neurologique*, 1920, A. xxvii, No. 9, p. 909.

Obesity is rarely fatal. Death usually occurs from complications or from intercurrent disease, such as myocarditis, nephritis, vascular disease, diabetes, etc. This fact tends to disprove from an anatomical pathological view, the opinion that obesity is caused by malfunctioning of the glands of internal secretion, although it may be of clinical and therapeutic value. Chauffard, in a case of hereditary obesity, found sclerosis of the thyroid and Abrikossoff, in a postmortem examination, found the thyroid much atrophied.

The authors have examined three obese persons who were killed by trauma. In 2 the sexual glands, hypophysis and thyroid were normal, all excepting insignificant alterations. In the third there was a slight atrophy, with genital impotence. The thyroid was normal. In the hypophyseal gland an old hematic cyst was found surrounded by a strong fibrous capsule, which involved the intermediary portion and all the anterior lobe. The surrounding glandular tissue was reduced to a ring of small cells with rare granular protoplasm, which stained readily with hematoxylin and eosin.

This case was a hypophyseal lesion, which must have given rise to genital atrophy, impotence and fatty degeneration. Probably sexual discouragement caused suicide.

The authors' case was a single woman, 29 years old, whose mother's parents and brothers were stout. The rest of the family was normal. She was infected by syphilis at the age of eighteen having been in good health previously. She was treated with gray ointment and iodine. She had been thin and regularly menstruated. Menses ceased and obesity developed. She was 157.5 cm. in height (63 inches), and weighed 157 kilograms (346 pounds). There was dyspnea and quick regular pulse of from 90 to 100, when at rest. The cardiac sounds were weak. Arterial tension (Pachon) was 17.8, and there was marked cyanosis of the lips and ears. In the left eye there was an hematoma of the lid, cornean hemorrhage, which occurred over night, and swelling of the ankle during the day. The patient was quite contented and went about her domestic duties with comparative ease. Blood analysis showed 7,756,200 red globules, 80 per cent hemoglobin, 11,320 leukocytes, glycemia 0.116 per cent. The urine showed traces of albumin. The woman had come to be studied but died three days later when getting into the street car.

Postmortem examination made a few hours later, showed cyanosis of the lips, nose, ears, hands and feet; nasal and oral hemorrhage. Slight cerebral edema was present. The lungs showed circulatory stasis at their bases. There was slight hypertrophy of the left ventricle and dilatation of the left cavity. The cardiac muscle was yellowish. Peri- and extracardiac fat was markedly small in amount. Excepting the liver, which was congested and slightly fatty, the digestive tract was normal. There was splenic enlargement. The kidneys were congested. The hypophysis looked normal and weighed 40 centigrams (1 4-5 pounds). The thyroid was hard and cirrhus. Under the microscope there was an excess of connective tissue, which was interspersed in the glandular. A large number of single colloid vesicles, which were pale and contracted and of the chromophil type, intermingled with cellular detritus and lymphocyte accumulation.

In the fat of the anterior mediastinum, which was not very abundant, 12 grains of tissue were found. Under the microscope much lymphocystic tissue and corpuseles of Hassall were found.

The suprarenal glands seemed normal to cut. The uterus was small, hard and thick, the ovaries were inflamed with old fibroid tissue, tubes and surrounding peritoneum were inflamed. They weighed 11 and 14 grains. There was an extensive cystic degeneration and the typical cystic ovary.

Postsyphilitic obesity has been mentioned by several writers. They have often accused the therapeutic, rather than the luetic, infection of being the cause. They have explained them by faulty functioning of the endocrines. It is known that insufficiency in the posterior part of the hypophysis will have effect on adiposis (syndrome of Frölich, Lannois), and infection may well effect the hypophysis.

The authors think that in their case obesity was due to hypofunction of the thyroid and hypophysis and in a secondary manner to the sexual glands.

PHEMISTER, D. B., MILLER, E. M., AND BONAR, B. E.: The Effect Of Phosphorus in Rickets. *Journal of the American Medical Association*, March 26, 1921, lxxvi, No. 13, p. 850.

An incomplete study of the influence of phosphorus and cod liver oil and of phosphorus alone has been made in rickets by means of the roentgen-ray. Four cases are reported. Two show the influence of phosphorus and cod-liver oil, and two show the influence of phosphorus alone.

The end-results produced by phosphorus, and the combination of phosphorus and cod-liver oil were quite similar. The rarefied areas of the rachitic bones acquired approximately normal density in both instances.

Case I, in which the patient received phosphorus and cod-liver oil, the intermediary stages of healing were studied, and ossification of the rarefied zone at the ends of the shafts was seen to occur by the formation of two transverse irregular lines at its limits, which gradually increased in thickness, the distal one apparently more rapidly than the proximal, until fusion occurred. After this there was some reduction in density of the newly ossified zone and a rearrangement of trabeculae, corresponding roughly to normal. How

ever, a transverse line was seen in the end of the metaphysis, and faint striation of the deeper portions was sometimes to be made out.

Case II showed striking ossification and growth of the rarefied bone during the period of administration of cod-liver oil and phosphorus. Roentgenograms at the end of the second period, during which phosphorus alone was given, showed much the same condition, with slightly heavier lines about the periphery of the short bones.

Case III, in which phosphorus alone was given, showed fully as marked ossification of the rarefied bone as did the others and with complete disappearance of the active signs of rickets. The ends of the shafts returned to normal density except for irregularity in the trabeculae and the presence of a dense line at the ends, which was somewhat narrower than that produced by the administration when the bones are normal.

The method of action is little understood. Clearly phosphorus and cod liver oil, in some ways, restore the power of normal ossification which is temporarily lost in rickets.

R. H. BENNETT.

GILL, C. A.: Malaria in England. *Journal of Hygiene*, 1921, xix, No. 3, p. 320

The observation that malaria, in the tropic and subtropic zones, is transmitted at a time of the year when temperature and humidity are above a definite height, has led to the study of malaria transmission in the United Kingdom. In India the critical time is when the monthly mean temperature is of 61° F. (16.11° C.) and the monthly mean relative humidity is 63 per cent. In northern India where the mean temperature during the greater portion of the year is uniformly above 61° F. (16.11° C.) the humidity factor by reason of its marked seasonal variability, exercises a predominant part in determining the season of the year and the duration of the period during which the transmission of infection may take place.

It was found that relative humidity plays little or no part in determining the seasonal incidence of malarial infection in England. The temperature, however, plays an important part, for

the time when malaria can be transmitted in England is the months of July and August when the temperature is in the mean from 60 to 62° F. (15.055 to 16.67° C.)

As the time for transmission in parts of England is short and the carriers few, it may be hoped that a number of successive cold summers would decrease malaria considerably. The recovery rate would then exceed the infection rate. This will most probably occur on the northern border of the zone of malaria.

Malaria sine paludism occurs where the temperature is critical but not the degree of humidity.

SOPER, H. W.: **A Physiologic Basis for the Treatment of Chronic Constipation.** *Southern Medical Journal*, 1921, xiv, No. 2, p. 99.

The rectosigmoid apparatus has the same circular muscle fibres and similar nerve supply as the cardia and pylorus. It has an important part in the time of defecation. It seems to hold up the column of feces, relaxing only at the time of defecation to permit the contents to enter the rectum.

The weight of the feces excite the "muscle sense reflex," causing expulsion of the rectal contents. Under normal conditions, one passage should occur daily. After defecation, it takes about twenty-four hours for the fecal column to reach the rectopelvic junction. It takes about thirty-three hours for the evacuation of a meal from the gastro-intestinal tract. Food taken nine hours before the act of defecation should partly appear in the feces, except, of course, in the esthenic or hyperesthenic type. In tests with carmin or charcoal, no trace should be found on the third morning after the ingestion of the capsule.

The common type of constipation is that of an evacuation of the rectum only, descending and iliac colon remaining full of fecal matter. The rectosigmoid apparatus will later again relax and the "muscle sense" will occur, but remain unheeded. This habit being established the stimulation will grow weaker, and enemata are resorted to.

In treatment, purgatives and enemata must be stopped at once. "The fecal column must be permitted to form in the lower colon". On the third day the sphincter should be dilated or the procto-

sigmoidoscope introduced. The patient should relax his abdominal muscles by leaning forward. Deep, steady pressure directly under the ribs deep in the costal angle on each side of the epigastrium should then be made.

The patient should drink a pint of cold water upon arising and practice abdominal muscular exercise.

Defecation must be practiced for at least fifteen minutes after breakfast. Diet must be rich in vegetables and fruits. Agar-agar prevents drying of the feces. In from four to six weeks the function of the colon should be reestablished.

The daily use of purgatives may have caused sphincter spasms and rectal contractures, or spastic contractives of the rectosigmoid region and spasm of the iliac colon, or pus infections of the rectum and rectosigmoid region, or atony of the rectum and sigmoid. In sphincter spasms and rectal contractures, the rectum resists introduction of the examining finger or protoscope. The rectal mucosa is deep red and congested. Small, ineffectual, daily passages are reported by the patient. The graduated protoscope is used for dilating the sphincter, and the restoration of colonic function urged, as above.

In sigmoidospasm the patient fails more and more to obtain a bowel movement, which, when it occurs, is accompanied by pain in the left groin.

The stools consist of small hard pieces. The rectosigmoid is slightly contracted at the angle. Solutions of magnesium sulphate applied to the contracted part acts as a specific in overcoming hypertonicity. The application is repeated every second or third day. Spasm of the iliac colon will relax and reform under the palpating finger. In atony, no contraction can be felt. In chronic spasm it is palpated as a rigid cord, usually tender to pressure.

In treatment, the patient is put in the knee chest posture and the sigmoidoscope introduced as far as possible. Through it a well lubricated soft rubber catheter is passed and from one to two ounces of a saturated solution of magnesium sulphate injected by means of a piston syringe. The patient remains in the same posture after removal of the instruments.

Injections are treated with insufflations of a powder through the sigmoidoscope. Equal parts of bismuth subcarbonate and calomel are used.

BRADLEY, E. B.: **The Importance of a Knowledge of Syphilis to the Internist.** *Southern Medical Journal*, 1921, xiv, No. 2, p. 91.

Autopsy material in from one-third to two-thirds of the adults shows syphilis. Diagnostic and therapeutic measures now appear to the author to have favorably progressed, justifying the hope of late syphilis becoming a rare occurrence.

The specific nature of the initial lesion is not difficult in a dark-field examination. A physician who awaits the secondary stage, or even the Wassermann reaction, lacks all sense of duty, for the chance of cure is the greatest in this early stage. Routine examination of Wassermann test should be resorted to by every clinician in all cases. Symptoms may not be, or seem to be, caused by syphilis, and yet will very often disappear under specific treatment.

Warthin, from postmortem examination of 200 cases of syphilis, found 50 of which were congenital and concluded that the most important cause of both endocarditis and myocarditis is syphilis. The most common occurrence is involvement of the aortic valves. Spirochetes were more often found in the heart and aorta than elsewhere, and syphilis as an essentially vascular disease. The most prominent symptoms are: Substernal pain or dull depression, attacks of angina, which are increased on exertion. The mediastinum may become involved and pain on swallowing may ensue. Aortic aneurysm is the late result in from 30 to 80 per cent of these cases.

Warthin finds syphilitic infection of the lung in 40 per cent of 750 autopsies. It may also occur in the pleura or pulmonary artery. The physical signs are not distinct and often simulate and accompany tuberculosis. Gummata may occur in the wall of the tubercle and cause an old focus to become active. Diagnosis is made by the *x*-ray, the Wassermann, and therapeutic tests.

In the alimentary system, gummata in the liver are met with the most frequently. Syphilis of the alimentary system may result in nodular enlargement, pain, ascitis, vomiting, and be mistaken for cancer, Banti's disease, gall-stones, colic or acute yellow atrophy. Fever is often present, but not characteristic. The spleen is often enlarged, especially in congenital cases. If the *x*-ray shows an atypical ulcer or a growth, lues must be considered. The

lesions may resemble cancer, or be a cancer centered around a tertiary lesion in any part of the digestive tract. There may be gummata, ulcerations, or strictures.

The similarity between tuberculous joint disease and that of inherited syphilis has often been put forth. In these cases parental stigmata and positive Wassermann tests must be looked for, and antisyphilitic treatment tried. Clinically, Pott's disease is often diagnosed.

In the genito-urinary tract the late forms found by the internist are, gummata of the testis, which it is often difficult to distinguish from malignant conditions. Orchitis, hydrocele and gummata may be found throughout the tract. Syphilitic nephritis must not be overlooked. The involvement of the central nervous system occurs early in the second stage, the tertiary symptoms are often precursory of locomotor ataxia or general paralysis. They are, irregularity of the pupils, ophthalmoplegia, bladder disturbance, change in sexual power, gastric crises, pains in the legs or anus. Aphasia, transient or permanent, paralysis of muscles, area of anesthesia or paresthesia, unconsciousness or convulsions. They all call for a Wassermann test, and spinal fluid examination. Gummatus meningitis, syphilitic arteritis must be looked for. Unexplained febrile conditions are very often due to syphilis.

REID, W. D.: The First Heart Sound and the Presystolic Murmur.
Journal of the American Medical Association, Feb. 12, 1921, lxxvi,
No. 7, p. 432.

A presystolic murmur heard over the apex of the heart has long been considered as strong evidence of stenosis of the mitral valve. Experience has shown, however, that a presystolic murmur may be recorded in which postmortem examination discloses intact mitral curtains. There is also a type of normal heart which closely simulates one type of mitral stenosis. Furthermore, at times the first sound is so modified by a systolic murmur that it is sometimes described as "a presystolic murmur ending in a sharp first sound", and, if the murmur continues further, "followed by a systolic murmur."

A systolic murmur may occur with the first sound and persist

throughout systole. This murmur may mask the first sound in whole or in part. It may mask the first part of the sound and continue after it, or, it may not be audible after the first sound.

The paper deals with the murmur heard in early systole or the last two types mentioned above. As observed clinically, it commonly has an intensity and a pitch which are inconsistent with the velocity of flow which may conceivably be produced by the relatively low pressure found in the left auricle, while they are quite in accord with the stream velocity which should arise as a result of contraction of the left ventricle. In the author's experience, no murmur occurring at any period of diastole due to blood passing through a stenosed mitral valve has any such quality. These true diastolic murmurs of mitral stenosis are less marked in intensity and are of lower pitch.

As regards the time of the presystolic murmur of mitral stenosis and that represented as early systolic, the author suggests that clinically one may appreciate that the former occurs at a slightly earlier period in the heart cycle, namely, the time of auricular systole. It is safer to rely on the presystolic murmur which is late diastolic in time in the diagnosis of mitral stenosis.

As a possible explanation of the early systolic murmur, not infrequently confused with a murmur presystolic in time, it should be recalled that the approximation of the borders of the mitral orifice is an essential part of successful closure of the valve. Since the valve curtains do not increase in size to meet the extra need, anything interfering with this muscular element will cause delay or failure to shut off the aperture with resulting mitral insufficiency which, in turn, will be noted in auscultation by a systolic murmur produced by the stream of regurgitated blood.

Patients presenting a presystolic murmur (so-called) in life but with no structural change in the mitral valve on postmortem examination are all those with large hearts. It may be said to be the rule that when cardiac enlargement takes place some degree of dilatation occurs. It is quite conceivable, therefore, that in cases in which there is some dilatation of the left ventricle, an imperfect closure of the mitral valve may result from inadequacy of the muscular element. It is suggested that in dilatation such as obtains in certain large hearts, the valve may be completely closed only after systole has been under way for a short period, owing

to the increased distance from which the periphery of the mitral valve must be approximated. Such a conception will explain a murmur of regurgitation in early systole.

R. H. BENNETT.

EGGLESTON, C.: **Some Newer Concepts in Digitalis Therapy.** The *American Journal of the Medical Sciences*. Nov., 1920, clx, No. 5, No. 584, p. 625.

Except in two conditions, namely, heart failure with marked edema and unstable hearts with spontaneous fluctuations, digitalis is seldom followed by slowing of the heart rate in the presence of normal sinus rhythm. It is indicated in heart failure due to aortic insufficiency. While not contra-indicated in impaired conditions, it is administered with constant observance. It is not contra-indicated in partial heart-block; any increase of impairment of conduction can be overcome by atropin. High systolic blood-pressure, in a person with heart failure, does not contra-indicate its administration.

It is shown that neither digitalis nor digitoxin has direct action on the blood-vessels even in large therapeutic doses. The pulse pressure increases, chiefly through the reduction of diastolic pressure. The tendency is to reduce systolic pressure.

As to administration, the powdered leaf and the tincture of high grade are the most satisfactory. The former is commended to be taken in capsules. Of the proprietary preparations, digipuratim or digipoten are the best. The absorption from the alimentary tract depends on the condition of the patient. A single dose is absorbed in about six hours. Full digitalization can be secured orally within twenty-four hours after the first dose, and frequently within ten hours. Small doses, grains ii to grains iv (0.130 to 0.260 grams), of the powdered leaf, or minims xx to minims xl (18.9860 grains to 37.9720 grains) of the tincture should be administered every four hours—four doses daily. From four to six days are generally required to secure digitalization. For large doses from one to two days are required, giving grains vi to grains vii (0.400 to 0.46 grams) of the powdered leaf or 4 c. c. (1 dram) of the tincture every six hours, day and night for four doses. When a patient is kept under continuous administration of small doses, it need only be

taken once daily instead of divided into two or three doses. Digitalis is eliminated at the rate of about 22 minims (20.8846 grains) per day. Strophanthus, convallaria and squills are poorly and irregularly absorbed. Strophanthus is one hundred times as active as digitalis yet the official dose is only half that of digitalis. Never give strophanthus by mouth.

A. T. MAYS.

CORNELL, B. S.: **Clinical Evidences of Acidemia in Chronic Nephritis.** *Journal of the American Medical Association*, March 12, 1921, lxxvi, No. 11, p. 715.

In a previous article the author has shown that in ninety-five out of a hundred cases in which nephritis had been present under three years, there was a special kind of dyspnea. To distinguish it from heart dyspnea two observations are helpful:

(1) It has no accompanying cyanosis.

(2) It is speedily removed by the administration of sodium carbonate by mouth.

Although no more than 20 per cent of cases make a complaint of their dyspnea, 95 per cent admit having it, when questioned. It is apparent that various degrees of this dyspnea occur. The majority have it but not sufficiently to complain.

Value of Detecting Acidemia:—(1) In Early Diagnosis.—A syndrome of lumbar pain, frequency (day or night) and dyspnea of noncardiac origin is suggestive of incipient nephritis, even in the absence of albumen. (2) In Treatment.—Sodium carbonate in sufficient doses gives prompt relief.

R. H. BENNETT.

PELLINI, E. J.: **The Ambulatory Patient With Cardiac Disease with Especial Reference to Digitalis Therapy.** *Journal of the American Medical Association*, March 19, 1921, lxxvi, No. 12, p. 774.

Each new patient is grouped according to his functional capacity as classified by the Association of Cardiac Clinics:

Type 1.—Patients having heart disease who have never been decompensated.

Type 2.—Patients having heart disease who have been decompensated but who are now compensated.

Type 3.—Patients having heart disease who are now decompensated.

Type 4.—Cases of possible heart disease.

Type 5.—Cases of potential heart disease.

From this classification and other data the author determines whether or not the patient should receive digitalis. If digitalis is required it is ordered with all the necessary explanations as to dose, symptoms of toxicity, and with other directions as to treatment. The patient is then requested to return at the end of the week.

At each visit to the clinic the patient is put through definite routine, that is, his weight, general condition, presence of edema, dyspnea and cyanosis, heart regularity and rate, pulse deficit, and blood-pressure are all charted. The next step is to determine for each case the amount of digitalis necessary to produce a digitalis equilibrium, that is, the minimum dose which will keep the patient digitalized and compensated under the existing conditions of work.

Results of Treatment.—Age is the first factor which stands out prominently in the series in reference to digitalis medication. In the nondigitalized cases, only 28 per cent were every forty years of age. In the digitalized cases with improvement, 45 per cent were forty or over, and in the nonimproved cases 54 per cent were in this class.

The most prevalent type of disease is the double mitral lesion. The etiologic factor in most of these cases is the rheumatic triad. This class forms 28 per cent of all the cases in the nondigitalized series, 45 per cent in the digitalized with improvement series, and 54 per cent in the unimproved series.

In all but 2 of the nondigitalized cases the rhythm has been regular. In the digitalized series with improvement, 66 per cent are cases of auricular fibrillation. In the nonimproved cases 73 per cent are cases of fibrillation.

In the nondigitalized group 95 per cent of the patients work. Eleven per cent were able to do heavy physical work, 30 per cent were able to do moderately severe physical work, and 58 per cent did light work. In the digitalized series 85 per cent work, 22 per cent did heavy work, 22 per cent did moderate work, and 56

per cent did light work. In the unimproved cases only 18 per cent worked, all doing light work.

With each new patient requiring digitalis and not recently taking it, the first attempt was to thoroughly digitalize him. The patient was started on 30 minims (28.4790 grains) three times a day and varied as later requirements arose. When full digitalization occurred the dosage was decreased until signs of decompensation began to occur, when the dose was again increased. After several attempts with this procedure a minimum dose which will keep him digitalized is obtained. This is called the "digitalis equilibrium".

In the digitalis cases with improvement 71 per cent of the patients received between 20 and 30 minims (18.9860 and 28.4790 grains) per day; and the other remaining 29 per cent were divided equally above and below this dosage.

R. H. BENNETT.

OPHULS, W.: **Arteriosclerosis And Cardiovascular Disease. Their Relation to Infectious Diseases.** *Journal of the American Medical Association*, March 12, 1921, lxxvi, No. 11, pp. 700-701.

In an endeavor to throw light on the possible interrelation between certain infectious disease and the later development of arteriosclerosis or the syndrome of cardiovascular disease the records from 500 complete necropsies were studied.

A comparison was made of these cases in which all history or signs of previous infection were absent and those in which these had been detected, with the very striking result that chronic arterial disease was almost entirely lacking in the first group and made its appearance early and very frequently in the second group. Furthermore, this connection does not exist in all infectious diseases, but is fairly well limited to chronic rheumatic (septic) conditions.

There is no direct relation between the extent and severity of the arterial disease* and the amount of functional disturbance in the cardiovascular system.

According to the organs principally involved, the cases may be segregated into several groups; those with prevailing involvement of the cerebral vessels, those with marked lesions of the

coronary arteries and of the myocardium, those with severe renal lesions, and lastly, those with endarteritis in the stomach and duodenum followed by chronic ulceration.

R. H. BENNETT.

FEUILLADE, P. H.: **Treatment of Sciatic Neuralgia with Epidural Injections** (Traitement des neuralgies sciatiques par les injections epidurales). *Lyon Medical*, 1920, A. lii, T. cxxix, No. 22, p. 933.

The author has practiced analgesic injections in sciatic neuralgia on the soldiers at two neurologic army stations. Usually the disease was a consequence of cold, and more so, of exposure to dampness.

In many cases of young individuals, one injection would suffice for a lasting cure. In numerous cases, however, more had to be made, for a period of from seven to eight days rest was enforced on the patients after the epidural injections. In men from thirty-five to forty-five years of age, from four to eight injections were sometimes made in from three to four days. They sometimes kept on duty during the treatment.

For the injections, very sharp needles of from 4 to 5 cm. (1.6 to 2 inches) and a syringe, holding 2, 5, 10 or 20 c. c. (32.4 minims, 1.35 fluidrams, 2.71 fluidrams, 5.42 fluidrams) were used.

The patient is placed on a bed in a lateral position with flexed lower limbs or in a kneeling posture with curved back, and head bent down. In either position the obsturator ligament at the inferior sacral orifice is firmly stretched over the sacrocoecygeal region.

The upper border of the superior sacral orifice is felt by the finger, slightly protending under the skin.

The needle is introduced perpendicularly into the middle of the sacrocoecygeal hiatus. The obsturator ligament presents some resistance. After this is penetrated the needle is inserted along the sacral canal into the spinal, up to 3 or 4 cm. (1.1811 to 1.6 inches). At this moment the needle appears to be inside of a very narrow space. The liquid is injected slowly.

If it runs back over the needle, the dural cavity must be looked for lower down, at the next session, in order to be able to penetrate the dural sack.

A 1:100 solution of cocain, 1 to 3 c. c. (16 to 48 minims), or a larger dose of stovain, 10 to 20 c. c. (2.71 to 5.42 fluidrams) artificial serum, is generally used for the injections.

The injections are well tolerated and cause no inconvenience.

In most of the cases the pain disappears on each treatment, and in some, it disappears entirely.

GRADENIGO, G.: Ligation of the Jugular in Pyemic Otitis (*Sulla Legatura Della Giugulare Nella P₁ mia Oritica*). *La Riforma Medica*. 1921, xxxvii, No. 6, p. 126.

Pyemia is one of the most frequent and gravest complications of purulent otitis as well as acute and chronic mastoiditis, and presents itself in two clinical forms. In the one, general infection arises from thrombophlebitis in the sigmoid sinuses, and, to an extent, of the lateral sinus which is in immediate contact with the posterior part of the mastoid. In other cases, infection starts from osteomyelitis of the temporal bone. The pyemic attacks may come on in twenty-four hours, are preceded by intense and prolonged chills, and are ushered in by temperatures rising to 40° C. (104° F.), defervescence and profuse perspiration following.

Pus is accumulated, often under high pressure, in the mastoid cavity, and eats away the thin septa intervening between it and the sigmoid sulcus. It is spread over the bone and the dura mater of the sinus. In this way an extradural perisinusal introitus is established. The dura mater generally shows great resistance to infection, much more so than the mastoid bone.

When once covered with granulation the symptoms of general reaction are not marked. This perisinusal way of access is often used for operative action, but the resistance of the dura mater breaks down if no operation is made. At some point the wall of the sinus becomes blackish, with a tendency to necrosis, and as a defense, a circumscribed parietal thrombus arises which does not occlude the lumen of the vessel. Later, phlebitis extends, the outer part of the sinus takes on the characteristic yellow color of dead leaves, and the thrombus becomes occlusive and extends in two directions, on one side toward the jugular. In the beginning this thrombus is sterile, but later becomes infected and tends to suppurate.

ration. Parts are taken into the blood circulation and form metastatic processes in the main organs, especially in the lungs, spleen, and liver, and are distributed all over the muscles and blood-vessels. The patient dies of septicemia.

To avoid penetration of infection into the circulation, jugular ligature was proposed and much discussed.

The author reports on a case of a woman of twenty years of age, who was, after an attack of tonsillitis, suffering from very acute attacks of purulent otitis media of the left ear. The disease soon took the course of a very severe case of osteomyelitis, although extensive surgical measures had been used on the mastoid. It assumed a pyemic character. Infection was not stayed by an explorative intervention in the sinus, which was found free from thrombosis. On the second day the jugular was ligated. It contained pure blood flowing liberally. The infectious process was cut off immediately. Convalescence was undisturbed, and complete recovery ensued. No disturbance of the venous blood circulation of the head could be noticed, nor did the ophthalmoscope reveal any disturbance of the circulation.

BURKE, V., ELDER, J. C., AND PISCHEL, D.: **Treatment of Botulism.**
Archives of Internal Medicine, March, 1921, xxvii, No. 3.

The authors found that spoiled food containing gas may appear to be boiling at a lower temperature than the actual boiling point and at a temperature lower than is necessary to destroy the toxin. Foods exposed to a temperature of 80° C. (176.0° F.) for an hour may appear to be boiling part of the time and not be safe to eat. The heat resistance of the disease-producing power of spoiled canned foods containing *C. Botulinum* and its toxin has not been determined and probably will be found to vary.

The authors believe that infection in human beings following the ingestion of toxin free organisms probably never occurs. However, it seems probable that after paralysis has set in following the ingestion of both the performed toxin and the organism, the organism may produce more toxin in the alimentary canal. Treatment should, therefore, aim to neutralize and wash out the toxin and inhibit or destroy the organism. The stomach should be

washed out as soon as possible, and experimental work has suggested the value of demulcents and oils to delay the absorption of the toxin. High enemas are recommended. In these may be used liquid soap, which neutralizes the toxin, olive oil, which prevents its absorption, or iodine or potassium permanganate, both of which destroy the toxin and the organism.

Serum should prove of great value if its use is begun sufficiently early. After paralysis has supervened it can have no effect beyond tending to prevent further nerve involvement, and that is doubtful. If used about the time symptoms appear, or in the case of those known to have been exposed before symptoms appear, the evidence seems to show that it will protect against a lethal dose. As there are two types of organism, a polyvalent serum should be used.

TASKER HOWARD.

CLARK, T.: **Malnutrition.** *Public Health Reports*, 1921, xxxvi, No. 17, p. 924.

Children suffering from malnutrition are much below normal weight for height and they gain much more slowly than they should, and serious disease, such as tuberculosis may ensue. The babies are regularly weighed, but it is also necessary to take the weight of the older children regularly. At the age of from six to ten years a healthy child gains 4 or 5 pounds a year, but some gain only 1 or 2 pounds or even none. From twelve to sixteen years healthy children should gain from 6 to 10 pounds a year. And if they gain only from 2 to 3 pounds it is not sufficient. The effect of malnutrition is that the children are pale, dull, listless, easily tired, without ambition. They must frequently repeat their grades. Some are nervous and fretful, hard to please and hard to manage; they eat and sleep badly. Others are overambitious, restless, cannot concentrate.

The reason for children getting into this state is that they are not watched. When children do not grow or gain regularly, something is wrong. The causes are, insufficient or inappropriate food, candy, sweets, pastry, eating between meals, bolting, insufficient chewing; washing food down with water, drinking tea and coffee instead of

milk and water, insufficient sleep with closed windows, habitual constipation, too much stimulation and excitement, evening entertainments, too intensive playing, overwork at school or at home, too many extra lessons or classes outside, decayed teeth, enlarged tonsils or adenoids, malaria or hookworm.

A boy between five and eight years of age ought to gain about 6 ounces a month; one from eight to twelve, 8 ounces; one from twelve to sixteen, 16 ounces; one from sixteen to eighteen, 8 ounces. Girls from five to eight years of age ought to gain 6 ounces; from eight to eleven, 8 ounces; from eleven to fourteen, 12 ounces; from fourteen to sixteen, 8 ounces; and from sixteen to eighteen, 4 ounces.

Boys five years old, and from 39 to 46 inches in height, should gain from 35 to 48 ounces a year; those ten years old, and from 47 to 60 inches in height from 54 to 91 ounces; and those fifteen years old and from 57 to 76 inches in height, 86 to 174 ounces. Girls five years old, and from 39 to 46 inches in height, ought to gain from 34 to 48 ounces a year; those ten years old and from 47 to 59 inches in height, 53 to 89 ounces; and those fifteen years old, from 57 to 72 inches in height, 86 to 145 ounces.

In the selective draft nearly one man in 3 of the young men examined was unfit for active military service. Forty thousand became of deficient height, weight, chest measurement or muscular development. Twenty per cent of the children in our schools are suffering from malnutrition. Parents, teachers, school nurse, or doctor should take the weight regularly. Malnutrition must be cured by removing the cause and correcting the habit.

During early infancy, diet should consist wholly of milk, mother's milk. When from three to five months old, children should have orange juice. If they are bottle-fed at five months of age their milk should be diluted with barley or oatmeal water. At about eight months cereal gruel may be added to their diet, after nine months of age beef juice or beef tea is advised. At ten months of age, crackers, toast, strained cereal and mutton, beef, or chicken broth, or strained soup made with strained vegetables may be given. Children should not be weaned before the tenth month, and only in cool weather. During weaning, cow's milk should be the principal food. About the fifteenth or sixteenth month cereal, potatoes, cooked fruit, scraped meat, and vegetables may be added, also slightly sweetened simple desserts, such as cornstarch, blanc mange,

custard, plain rice pudding, and junket (at eighteen months). At the age of two or three years, finely chipped rare beef, chicken, lamb chops, boiled fish (meat very sparingly) can be given to young children. An egg should be given only once or twice a week.

The food of older children should contain fat, carbohydrates, protein, salts, water and "vitamins". Fats are most readily converted into heat and energy. Among the available fats are cow's milk, cream, butter, cottonseed oil, peanut butter, oleomargarine, olive oil and bacon; among the carbohydrates are cereals, breakfast foods, potatoes, rice, macaroni, spaghetti, and bread; and among the protein foods are lean meat, eggs, chicken, fish, milk, cheese, peas, and beans. For the growing skeleton salts, present in milk and eggs, green vegetables and fruits, are necessary. To a diet of meat, potatoes, bread, and cereals, much milk, butter and green leafy vegetables must be added.

McELROY, J. B.: **Etiology and Diagnosis of Nephritis.** *Southern Medical Journal*, 1921, xiv, p. 347.

Under the term nephritis are included degeneration, inflammation and atherosclerotic processes of the kidney. They have been described in text-books under the headings of acute and chronic parenchymatous nephritis, chronic interstitial nephritis and amyloid kidney. Chronic parenchymatous nephritis clinically presents two groups, one with and one without increased blood-pressure. In the latter group the kidney is white and large without inflammation in the glomeruli. The epithelium and kidney tubules are, however, degenerated. Where increased blood-pressure prevails there is stasis, hyperemia, exudation, infiltration and proliferation in the glomeruli. True inflammatory changes may occur without increased blood-pressure, as in hemorrhagic focal nephritides, embolic, acute interstitial and glomerulo-nephritis in infectious processes.

It has been recently proven that the kidneys, in chronic interstitial nephritis, are not changed by a gradual interstitial inflammation, but by atherosclerosis of the small blood-vessels of the kidney. In these cases increased blood-pressure and cardiac hypertrophy are the clinical signs. There may be, in this group, no functional disturbance as in hyperpiesis, hypertensive cardiovascular

cular disease and benign hypertension. Where there is impairment of function Vollhard and Fahr term it as malignant hypertension. There are atherosclerosis of the smallest blood-vessels of the kidney and inflammatory changes in the glomeruli. The author proposed to discard the terms parenchymatous and interstitial. As the present state of our knowledge does not justify a classification on a clinical, functional, and anatomical basis, a simple clinical one has been suggested,—acute nephritis, chronic nephritis with or without edema, and possibly a subacute nephritis. Another equally deficient classification has been made in nephritis with defect of nitrogen elimination and those with defect of water and salt elimination. The author accepts Vollhard and Fahr's division of Bright's disease into degenerative inflammatory and atherosclerotic with sub-groups. Diagnostically there are a gradual onset, anorexia, fatiguability, pale skin, generalized edema with fluid in the serious cavities, which is pseudochylous, of low specific gravity, poor in proteins, rich in lipoids. Blood-pressure is not increased, cardiac hypertrophy is absent, there is usually no anemia, but diarrhea, pseudochylous blood serum, rich in lipoids, poor in proteins, and relatively rich in globulin, oliguria, high specific gravity, albuminuria are present. Blood, cylindruria, fatty epithelium and double refracting substance are absent, and there are usually no changes in eye-ground. The kidney function is not usually impaired; water and phenolsulphonephthalein may be below normal, and with the elimination of edema the blood urea and non-protein nitrogen may be temporarily high. Uremia does not occur.

In acute diffuse glomerulonephritis there is usually a distinct period of incubation of about three weeks. There may be fatigue, anorexia, and increased thirst. In other cases there may be, however, a sudden onset with chill, fever, and vomiting. Edema is present in more than half the cases. Blood-pressure is increased, the maximal pressures cannot be said to coincide with the severest cases. Cardiac hypertrophy can not usually, be clinically demonstrated, whereas it is found at autopsy. Blood changes are not constant. There are oliguria, hematuria, albuminuria, and microscopically red blood cells and casts; occasionally changes of eye-ground, especially papillitis or neuroretinitis during pregnancy or hemorrhages into the retina are seen. In the severe extracapillary form, there is functional disturbance. Eclamptic uremia may oc-

cur independently of impaired function. Dropsy and excessive blood-pressure predispose to convulsions. True uremia rarely occurs in the acute stage.

Chronic diffuse glomerulonephritis without kidney insufficiency is a disease of earlier life in those not over fifty years of age. Often the patient complains of no symptoms. There may be recurring hematuria, headache, fatigue, backache, dizziness, edema, slight malnutrition, increased or labile blood-pressure, moderate hypertrophy of the heart, secondary anemia, slight albuminuria, casts, a few red cells, except in the hemorrhagic form. Where there is dropsy, the urine may show nephrosis or stasis kidney. Eye-ground changes are more frequent than in the acute stage. There is marked absence of functional impairment. Eclamptic uremia is not infrequent. True uremia does not occur.

Chronic diffuse glomerulonephritis with kidney insufficiency usually occurs before forty. Symptoms may be absent until before death. There is rarely edema of renal origin, but often that of cardiac. Constant high blood-pressure, hypertrophy of the heart, which is usually not so great as in atherosclerosis, dilatation and decompensation, marked secondary anemia, polyuria, hyposthenuria, slight albuminuria, cylindruria, papillitis, and neuroretinitis are the rule. The kidney function is markedly impaired. There is day and night polyuria. Specimens taken every two hours show a specific gravity around 1012 during the day, but a low specific gravity at night. There are true uremia, contracted pupils, digestive disturbances, hyperirritability, hypersensitiveness of the muscles and twitching, urinous odor of the breath, dyspnea or hyperapnea, often inflammation of the serous membranes, especially the pericardium, fall of temperature, apathy, stupor, and coma.

Focal nephritis is characterized by increased blood-pressure and cardiac hypertrophy, and hematuria. There is little tendency to edema, kidney insufficiency and uremia.

In the third group of Bright's disease, that of atherosclerosis, the cause is obscure. Predisposing are age and sex and a "poor tubing", hurry, worry, strain, and some unknown toxin.

The benign hypertension usually occurs after the fiftieth year. It runs its course as a cardiovascular disease. The first symptoms are those of relative myocardial insufficiency, oscillating between compensation and decompensation. These patients are usually

ruddy, plethoric, of active temperament. There are high blood-pressure and cardiac hypertrophy, especially of the left ventricle. It is discernable by teleoroentgenograms or orthodiagrams. Anemia is rare, there may even be a marked polycythemia. Often the urine shows no abnormalities, sometimes albumin and a few casts are present. There may be nycturia and night polyuria, and, as it is cardiac, day oliguria. The eye-ground changes are those of atherosclerosis. If papillitis and neuroretinitis are present, they are signs of its having passed into the combination form. The kidney function is unimpaired. The uremia is that in which the eclamptic equivalents occur. There are headache, dizziness, Cheyne-Stokes breathing, nocturnal asthma, cerebral crisis, transitory aphasia and paralysis, cerebral crises, increased reflexes, etc. True uremia with azotemia does not occur in those cases.

The combination form occurs most frequently from forty to fifty years of age, and in men. The benign hypertension passes into cachexia of chronic nephritis. It runs its course as a cardiovascular-renal disease. Cardiac hypertrophy is marked. Edema is of cardiac origin. There is marked secondary anemia, nycturia, day and night polyuria, with low specific gravity, albuminuria and moderate cylindruria. Papillitis and neuroretinitis is the rule. Functional impairment is characteristic. Death results from true uremia. Eclamptic equivalents are prominent as in benign hypertension. Eclamptic uremia may rarely occur. Usually the patients die earlier from a cardiovascular or pulmonary complication.

GIBSON, R. B., AND MARTIN, F. T.: **Administration of a Pituitary Extract and Histamin in a Case of Diabetes Insipidus.** *Archives of Internal Medicine*, March, 1921, xxvii, No. 3, p. 351.

The case of a patient with syphilis and diabetes insipidus was studied. The possibility of an hypophyseal effect through compression from a basal syphilitic meningitis was considered, as such conditions have been reported as having been relieved by lumbar puncture. However, in this case lumbar puncture failed to relieve any of the symptoms. The hypodermic use of pituitary extract in doses of 1 c. c. (16 minims) reduced the urinary output from 15,000 to 19,000 c. c. (500 to 634 fluidounces) to from about 4,000 to 5,000

c. c. (134 to 167 fluidounces). As it has been suggested that histamin may be the active principal of the posterior lobe of the pituitary gland, the effect of this drug was also tried. Polyuria was controlled to some degree, but certain disagreeable symptoms, which differed markedly from the effects of pituitary extract, supervened, and convinced the experimenters that the two drugs were not identical. Desiccated whole pituitary gland given in doses of 3 grains (0.195 grams) four times a day, had some slight temporary effect.

Some metabolic studies which were carried out showed, in general, an agreement with the finding in similar cases: high ammonia, uric acid, and undetermined nitrogen figures were obtained; there was no creatinuria; there was a hypoglycemia, and blood urea, creatinin, plasma chlorids, and total plasma proteins were normal.

TASKER HOWARD.

CROHN, B. B., AND REISS, J.: **Alimentary Hypersecretion; Gastric Hypersecretion; Gastrochronorrhea.** *American Journal of the Medical Sciences*, Jan., 1921, clxi, Part 1, No. 586, p. 43.

Hypersecretion is a frequent symptom, not a disease, occurring most commonly in males, and being present probably in at least 10 per cent of all persons with gastric complaints. It is classed as a functional disturbance of the secretory apparatus of the stomach. Its occurrence is independent of the acidity titer of the stomach, and is found more often associated with hyperacidity but can be seen through all the grades of acidity even in achylia gastrica. Intermittent hypersecretion was present in diseases of the cerebral nervous system, hysteria, psychic causes, etc. Of the milder grades of continuous hypersecretion, many of the cases are attributed to ulcer. The remainder are due to abnormal nerve irritation, either reflexly from abdominal disease in other organs or from neurotic instability, such as vagatonia, psychoneurosis, etc., (extrinsic causes). Most of the cases are of the continuous type, lasting throughout the digestive and interdigestive period. The most severe type of cases, when associated with vomiting, emaciation, thirst, epigastric pain, etc., constitute Reichmann's disease. These cases are nearly all due to gastric or duodenal ulcer (intrinsic cause).

A. T. MAYS.

BLACKFORD, J. M.: Clinical Review of Stomach Symptoms. *North-west Medicine*, 1921, xxi, No. 2, p. 36.

The author reports on 710 recent consecutive private cases of "stomach trouble". Sixty-eight cases remained unclassified or were postoperative. One hundred and seventeen suffered from neurosis, 32 from hyperacidity, 37 from achylia, 7 from psychic derangements. One hundred and eighteen were suffering from extra-abdominal disease, 5 from pernicious anemia, 15 from lues, 3 from tabes, 20 of the heart, 23 of the lungs, 25 of the kidneys, 12 from migraine; 15 had other diseases. There remains 248 reflex gastric cases. Of these, 55 had appendicitis, 105 gall-bladder disease, 67 constipation, 16 colitis, 11 pelvic diseases. The organic gastric cases were 22 of carcinoma, 10 of gastric ulcer, 50 of duodenal ulcer, 1 of gastric lues. One hundred forty-eight had been previously operated upon and the author urges an extensive careful clinical history and *x-ray* examinations before advising the opening of the abdomen. He considers it possible to make a very accurate diagnosis with the present laboratory and clinical means. In 94 cases the appendix had been removed, and about one-half of them had the same symptoms as before the operation. Six appendices and one gall-bladder had been removed from patients later proven to be suffering from duodenal ulcer. In 25 cases of removed appendix there was trouble from achylia, hyperacidity, or constipation, etc.

Most cases of "stomach trouble" have no organic stomach lesion. In 8 per cent there was a peptic ulcer. It occurs five times more often in the duodenum than in the stomach. If a deformed duodenal cap or gastric deformity appear on the screen, the author re-examines. Belladonna may help to relieve the spasm and render diagnosis more satisfactory. A "negative stomach" rarely showed late *x-ray* pathology. Duodenal ulcer shows a typical exacerbation of trouble with more or less complete remissions of symptoms. The history is usually of long standing. The remissions and exacerbations without food selection and with definite food relief can reasonably be judged as pyloric ulcer. A gastric ulcer, near the pylorus, gives a practical identical story. The farther it is removed from the pylorus, the more atypical the symptoms become. A posterior ulcer sometimes gives pain only after chronic perforation. Plastic peritonitis and pancreatic involvement cause pain. "An

ulcer pain, which is rapidly becoming violent during an exacerbation of ulcer symptoms, means probably a chronic perforation and may forecast an acute perforation." Severe ulcer pain referred to the back indicates chronic perforation with pancreatic involvement. This back pain will persist after operation, if the ulcer is not excised.

Acute perforation occurred twice in the series, once in a posterior wall ulcer with negative clinical and x-ray findings, once in a typical duodenal ulcer with severe symptoms. In both there were violent pain, sudden onset and blood vomiting. Acute perforation is regarded as always of surgical indication as soon as diagnosis is established. One case of acute perforation died. The patient was operated upon as soon as seen, but one week after the perforation had occurred. Ulcer hemorrhages very rarely terminate fatally, but in one case of 6 in the author's 50 duodenal ulcers it did. Medical treatment is advised in cases with a short clinical history, that have no obstruction, that are not seriously incapacitated and do not suffer chronically from severe pain. Surgical treatment is indicated when there are a chronic history, evident obstruction, periodic incapacity for work, and repeated hemorrhages. Proven gastric ulcers are surgical. Those patients who cannot pay for good medical treatment and are incapacitated for earning will be operated.

KEYES, A. B.: **Focal Infections and Their Clinical Relations to Metastases in the Female Genitalia.** *Illinois Medical Journal*, 1921, xxxix, No. 2, p. 119.

Since positive data are not satisfactory, the opinion must be adhered to that by far the greater number of female genital infections is caused "by contact". There are, however, cases of secondary metastatic infection in all other organs. The usual types of ascending female genitalia infection are: (1) Ascending intact, mucosa contact infection, catarrh from latent male gonorrhea, simple gonorrhea and gonorrhea-mixed. Gonococcus and pus are present. During menses or hemorrhage the vaginal mucus is neutralized, but generally it is too acid-antiseptic to permit ordinary pus microorganisms alone to pass beyond or live more than from six to twenty-four hours in the vagina. On the soil, if it is prepared by

Neisser's microörganism, pus and tubercular bacilli can live and develop. (2) Wound ascending infections after operation or curettage. Puerperal infection are ordinary pus, occasionally Neisser alone, or both. In term puerperal cases, the wound surface extends from the perineum to the whole endometrium.

The routes of descending focal infection may be theoretically considered to be through the digestive tract, penetrating the peritoneal cavity in cholecystitis, enteritis, colitis, appendicitis, etc., then without, but usually with some peritonitis, may reach the female genitalia. Presumably Menge's wave in the peritoneal cavity takes it to the ovaries and tubes, through the Fallopian tubes to the uterus. Adhesions may be paths for the spread of infection, either of appendix or intestines and parts of the genital organs. The para-tissue is hardly liable to cause metastatic tracks leading infection downward; metastases of lymph- and blood-vessels occur upwards, but by gravity pus sinks downwards, the infection often being attributed to the organ nearest the place of pointing. An infection in the neighborhood of the kidneys, gaining access to the parametrium may be diagnosed as primary parametritis of ascending infectious origin.

Surgeons of long experience know that the glands are the filter for the lymphatic and the lungs for both descending as well as ascending venous infections. Arteries are not feared in these days of asepsis but veins are with their pulmonary or transpulmonary embolism.

"Primary lymphatic descent of focal infections may be to the subclavian veins, then through the right heart, lungs, left heart and systemic arteries to any organ of the system."

Primary focal thrombophlebitis and embolism may occur in the unyielding structure of the teeth and in medullary osteomyelitis, the infection being forced into the veins. Free bacteriemia with recovery or septicemia or septico-pyemia will follow focal infections. Focal infections are possibly in some instances followed by cholecystitis, intestinal infections, or appendicitis from swallowing pus, with possible secondary peritonitis and migration, or para-tissue infection, and (sinking) abscess. Thrombosis and embolism into the pelvis must be conceded as possible, but rare.

Three physiological foci of lessened resistance in the female generative tract are: ovarian ovulations-atrium, the at-term puer-

peral intra-uterine wound surface, and the looser para-tissues. "The so-called anti-bodies after term labor may possibly be greater in the whole body generally and especially so in the ovulations (ovarian), and puerperal (uterus) wounds and looser puerperal parametrium and adnexæ, the uterine contractions at a healthy maximum present a surface that is relatively bloodless, superficial, and well drained, the pus never being retained by "scab".

Local differences in resistance in different parts of the bodies exist. This is evident in the infrequency of metastatic abscess in adult bone through the blood stream, when intact or when fractured.

"The proof for descending infection is in finding the same kind of pus in, e. g., the teeth or tonsils, etc. and the pelvic infection and then proving it to be positively a descending and positively not an ascending infection."

The author advises treatment of the head, mucosa and bronchi before operation and in early pregnancy.

McEWEN, E. L.: Chronic Focal Infections as Affecting the Skin. *Illinois Medical Journal*, 1921, xxxix, No. 2, p. 122.

"Strictly interpreted this does not include the toxic dermatoses which might arise from the absorption of poisons from some area within the body, nor does it include those eruptions which result from the gradual general dissemination of organisms from a single point of infection as in syphilis." To prove that a skin disorder is due to the presence of a distant focus of infection it is necessary to locate the focus, identify the organism in the skin lesion and produce a similar lesion by animal inoculation. Inferential evidence does not suffice. Rosenow could, in a severe thoracic zoster, grow streptococcus viridans from the infected tonsils. He not only produced zoster lesions by inoculation but recovered the streptococcus from the posterior nerve root ganglia of the inoculated animal. The same bacteriologist was able to grow the streptococcus viridans from the deeper portions of skin lesions in a woman suffering from well-marked erythema nodosum with considerable joint involvement. He produced structural changes in the tissues of the inoculated animals identical with those of erythema nodosum.

The author considers focal infection in a certain case of car-

buncle. The patient had some years previous passed through a sudden attack of streptococcic appendicitis. Two years later there was a mild arthritis of one knee. An x-ray examination of the teeth showed nine apical foci of infection. After removal of the offending teeth the knee returned practically to the normal in a very short time. The tonsils seemed fibrous and not infected. A fresh attack occurred a year later and carbuncles appeared in various parts of the body in connection with knee symptoms. Lumbago was at one time associated with a carbuncle on top of the head. When the tonsils were removed the deeper portions showed pus. After the operation, carbuncles and knee symptoms disappeared entirely.

A woman developed a sharp attack of pleurisy. A few days later the entire body was covered with lesions resembling chickenpox. The patient had had chickenpox during childhood. Some months later tubercular iritis was diagnosed.

Barber reported that streptococcus longus was found in pure culture in the tonsils in lupus erythematosus. An autogenous vaccine produced a local reaction in the face lesions of the disease; an acute lightening up of inflammation in the pharynx was attended with marked activity in the lesions and the case cleared completely following the removal of all lymphoid tissue from the throat and the use of vaccine. The same organism was found in the feces of other cases. Barber calls attention to the clinical similarity between erythema multiforme, which is often associated with streptococcic tonsillar infection, and the early stages of lupus erythematosus and the association of lupus erythematosus and rheumatoid arthritis, which is generally ascribed to a streptococcic toxemia.

There are then a few diseases of the skin which are caused by focal infection. In some it is presumed, but has not yet been proven, for instance, in pemphigus, dermatitis herpetiformis, lichen planus.

SWEET, F. B.: *Acute Infections of the Pancreas.* *Boston Medical and Surgical Journal*, Feb. 10, 1921, clxxxiv, No. 6, p. 137.

The author reports 6 cases of acute hemorrhagic pancreatitis and states the difficulty of definite diagnosis of this condition. All of his cases had severe epigastric pain; 4 of the 6 showed evidences

of fat necrosis; 3 had bloody or dirty fluid; 3 had a leaden pallor; 2 were jaundiced. Although all had definite evidences of gall-bladder disease with stone, only 2 gave a history of radiation of pain to the right shoulder. All cases showed unmistakable gross change in the pancreas. Three cases were operated on early and 3 late. Of the 3 early cases all made a good recovery; of the late cases 1 died and 2 recovered after a prolonged and septic course with considerable portion of the pancreas sloughed away.

M. BANOWITCH.

COHEN, M. B.: **Pruritus of Anaphylactic Origin.** *Journal of the American Medical Association*, Feb. 5, 1921, lxxvi, No. 6, p. 377.

The large number of remedial measures suggested for the relief of this symptom, which is usually associated with some chronic metabolic disturbance, demonstrates the frequent inadequacy of any, or all, of them.

Many investigators, among them, Schloss, Strickler and Walker, have studied the relationship of protein sensitization to skin diseases, such as urticaria, angioneurotic edema and eczema, following the suggestion of Fordyce, who in 1911 called attention to the possibility of an anaphylactic origin for eczema. Recently Fox has reviewed the literature on this subject and has reported the results of protein sensitization tests on sixty patients with eczema. His results and those quoted in the literature seem to indicate that those tests "will ultimately prove to be of therapeutic assistance in a small proportion of cases of eczema of adults."

The 2 cases reported herewith are of interest because of the lack of demonstrable cause except the food anaphylaxis, the inefficiency of local and general treatment and the complete cure following the elimination of the offending foods from the diet. Walker's method was followed in making the skin tests, using commercial proteins.

CASE I.—*History*.—C. E., farmer, white, aged 41, married. Family and personal histories were of no importance, had never had asthma, nor was there any history of asthma in the family. On July 4, 1920, consulted me because of intense itching about the genitals and in the anal region, which had troubled him continuously since the preceding January. The itching was so intense that

he found it necessary frequently to stop all work, and to obtain momentary relief by scratching. He had tried various local and internal remedies without relief.

Physical Examination.—The head, thorax, and abdomen were negative. The skin about the genital region was reddened, thickened and rough. There were no edema and eruption. The urine was negative for albumin and sugar.

Treatment and Result.—Since the usual methods of treatment gave only momentary relief, it was decided to discover and remove the etiologic factor if possible. Skin tests were made with the proteins of all the foods eaten during the period of one month. There was a ++ reaction to pork, with doubtful reactions to potato and milk.

Pork was eliminated from the diet. In seven days, the pruritus disappeared and has not returned during the last six months.

CASE 2.—History.—H. B., farmer, white, aged 25. Consulted me Oct. 5, 1920, complaining of intense itching over the entire body, of five weeks' duration. He had consulted several physicians who had prescribed the usual local and systemic remedies without result. The family and personal histories were negative for asthma and allied conditions.

Physical Examination.—This was negative except for a slight roughening of the skin and a few excoriations caused by scratching.

Treatment and Results.—Skin tests were made, using the proteins of buckwheat, milk, egg, pork, coffee, corn, tomato and chicken. There was a + reaction to potato and a + reaction to buckwheat. The elimination of potato and buckwheat from the diet for nine days gave complete relief for five days, when potatoes were again eaten. The itching recurred in two days. Potato was again eliminated from the diet, with complete relief. There has been no recurrence of symptoms in three months.

SMITH, A. K.: The Treatment of Acid and Alkali Burns. *Modern Medicine*, 1921, No. 4, iii, p. 232.

The strong caustics are sulphuric acid, nitric acid, potash, chlorid of antimony, chlorid of zinc, acid nitrate of mercury, bromin, chromic acid, lime, (and hot iron). They cause eschars or sloughs.

Applied to the skin, they immediately unite with it and kill it to a depth proportionate to the strength and quantity of the caustic, after which the action ceases. In the lesser degree, the epidermis only is destroyed and inflamed; in the second degree, sloughing extends into the true skin; that of the third degree not only destroys the skin, but extends into the underlying tissues. The author classes them all under burns.

First aid must be immediate. The shower bath must be used at once before removing any clothing, and water must be brought between the soaked clothing and the burn. Then, in the case of acid burns, a watery solution of bicarbonate of sodium may be mopped on the burned area, and a 2 per cent solution of acetic acid, in case of an alkali burn. In simple first degree burns, mopping may be followed by applying gauze bandages and bland ointments of boric acid or oxid of zinc ointment. Such a dressing relieves pain. The cases should be referred to a physician. Where any loose epidermis is rolled up, it must be removed with gauze and the area cleansed with a mild antiseptic, boric acid solution. Small blisters are left; large ones are cleaned with a 3½ per cent alcoholic solution of iodine, and an incision made with a sterile knife at its edge. Ointment used should be clean, sterile, and mildly antiseptic. It must have the proper melting point. Where discharge is profuse, the bandages must be frequently changed in the beginning, leaving them as long as possible later on.

The third degree burns are cleansed of loose detritus and dressed with sterile ointment. After three or four days, this dressing is replaced by a gauze dressing wet with normal salt solution. The wet dressing leaves the wound in a favorable condition for skin grafting.

The slough separates slowly before granulation can fill in. Healing may be hastened by careful removal of portions of the slough, by keeping down exuberant granulation tissue growth, and by skin grafting. Little pin point grafts or larger Tiersch grafts may be used. Shock may accompany burns. It can be combatted by a hypodermic of morphin, given early. The patient is wrapped in hot blankets and surrounded with hot bottles or hot bricks, which must be wrapped in flannel. Salt solution may be injected.

Burns of the eyes, if from acids, must be treated by douching with a watery solution of bicarbonate of soda; if from alkali, with

a 1 to 2 per cent solution of acetic acid, after which a piece of boric acid ointment, the size of a pea, is put under the eyelid and gently worked into all the corners.

NICHOLS, J. B.: Benign Decidual Tumors of the Uterus. *American Journal of the Medical Sciences*, Nov., 1920, clx, Part 5, No. 584, 697.

Tumors exhibiting decidual characteristics may develop during the period of gestation, appearing either as polyps protruding from the os or as intra-uterine tumors found at the time of parturition. Although their microscopic appearance somewhat resembles epithelioma (or endothelioma) they are strictly benign and should not lead to needless radical operation. Whether they originate from the decidua *de novo* or are previously existing tumors that have undergone decidual transformation cannot be finally stated; the former seems probable. The identification of the decidual character of such polyps is an indication of the existence of pregnancy.

A. T. MAYS.

JAEGER, H. M.: Gangrenous Ulcer in Vaginitis from Mercurial Intoxication (De la vaginite ulcero-gangreneuse par intoxication mercurielle). *Revue Medicale de la Suisse Romande*, 1920, No. 12, p. 796.

Among 10 cases of vaginitis from mercurial intoxication, taken from literature since 1896, all presenting, aside from vaginal lesions, symptoms of general intoxication, 4 proved fatal. The doses administered had not surpassed those generally well tolerated. In 1 case, sublimate was taken per os in a suicidal attempt; in 4 intramuscular injections of mercury-salicylate had been made; in 5, gray ointment had been used. Vaginitis occurred in from 2 to 6 weeks after beginning the treatment. Four patients showed superficial erosions only.

The author reports on 2 patients, 1 having been treated from August 30th to October 3rd with a total of 0.30 grains (.0195 gram) of pure mercury in the form of 2.65 grains (.17225 grams) of neo-

salvarsan, the maximum dose being 0.6 grain (.3909 gram) at intervals of from five to six days, and 5 intramuscular injections of gray oil, maximum dose of 9 cg. (1.3887 grains) at intervals of from five to nine days.

The second patient, treated from March 1st to April 20th, had 5.1 grains (0.3315 gram) of neo-salvarsan, the maximum dose being 0.6 grain (.3909 gram) at an interval of seven days, and 1.2 grains (.0780 gram) intramuscular injections of salicylate of mercury, the maximum dose being 1 c. c. (16 minims) at intervals of from four to five days.

Both patients died. The second had not returned for treatment after the general condition was better and the first symptoms had disappeared. She was brought to the hospital in a bad condition of epithelial nephritis, hemorrhagic stomatitis, and general mercurial intoxication two months later.

Autopsy showed mercurial intoxication parenchymatous nephritis, necrotic stomatitis, which had destroyed the entire mucous membrane of the mandible, and superficial ulceration of the colon. The bone marrow was infected. Fatty degeneration of the liver, subendocardiac and subpericardiac hemorrhage were found. Two ulcers of from 1 to 2½ cm. in diameter, rather superficial, and with a gray necrotic base were situated on the posterior vaginal wall.

In the other case, after the mouth was free of symptoms, the mucous membrane of the vagina was necrosed, dirty looking, gray shreds being shed. A constant vaginal irrigation of permanganate H₂ O₂ solution of Dakin was administered; however it could not stay the process. Rings from 3 to 5 mm. (.11811 to .19685 inches) broad of the vaginal membrane detached and were expelled.

Diagnosis in ulcerative mercurial vaginitis is usually facilitated by other signs of intoxication, such as stomatitis, albuminuria, enterocolitis, dermatitis, etc. Ulceration may be superficial, and when situated near the vulva, inflammation and edema may be intense. The borders are generally well defined and flat, and the base is grayish.

There may be difficulty in distinguishing this condition from perivaginitis phlegmonosa dissecans. In *ulcus roundum simplex* vaginæ the ulcer is crater-shaped.

SHIE, M. D.: **Industrial Lead Poisoning.** *Journal of the American Medical Association*, March 26, 1921, lxxvi, No. 13, p. 835.

The author drew his material from experience gained during a study of lead poisoning in several industries. Nine hundred workers were examined; 80 of these were found to be suffering from lead poisoning in various degrees of severity, and 95 others had sufficient signs to make a tentative diagnosis of plumbism.

Etiology.—By far the greatest amount of lead poisoning occurs among industrial workers. Occasionally it occurs in domestic life. Cases have occurred from eating canned fruit and other cases through the use of cosmetics, hair dyes, etc., containing lead.

With the possible exception of the silicates, lead in any form is capable of producing poisoning. The danger is more apparent with the soluble salts and the fumes from the molten metal. It decreases as the salts become less soluble, and as the temperature of molten metal is decreased.

There are three "portals of entry" by means of which lead enters the body. The most important is through the digestive tract, the second through the respiratory tract, and the third by way of the skin. The lead that reaches the stomach is converted to the chlorid by means of the gastric juice. In this form it is capable of esmosis and so enters the blood stream, where it forms an albuminate. The lead is also changed to the chlorid in the lung alveolæ and capillary walls.

Pathology and Symptomatology.—(a) *Acute Form.*—The usual case begins with some digestive disturbance—a sweetish metallic taste in the mouth, nausea, sometimes vomiting, anorexia, and frequently diarrhea. The latter is due to the gastroenteritis. Constipation and colic also occur. There is usually marked pallor of the skin, due to constriction of the peripheral vessels. Commonly there occurs severe headaches, insomnia, general asthenia, and lassitude. Often there is an acute interstitial neuritis causing a distal ataxia, and severe pains along the nerves affected. The optic nerve may be attacked, later causing optic atrophy and blindness. There is some albuminuria due to an acute nephritis affecting the tubules.

It is in the acute form that the encephalopathies most often occur. These cases are comparatively rare and are due to cerebral edema and minute cerebral hemorrhages. The symptoms are severe

headaches, delirium, convulsions, vomiting, retinal changes with diplopia or transient blindness, and sometimes paralysis, coma and death.

In acute cases the red blood cells become more resistant to hemolysis than normally. Basophilic degeneration of the red cells may also be detected.

(b) Chronic Form.—Marked pallor is almost a constant symptom. The author believes this is due to a vasomotor constriction of the peripheral arterioles. The blood counts in nearly all cases were only slightly below normal. The hemoglobin was usually between 80 and 100 and none were found below 65 per cent.

In all cases of chronic plumbism the author found a marked increase in the large mononuclear cells, ranging from 10 to 35 per cent. This increase was frequently at the expense of the polymorphonuclear cells, and sometimes at the expense of the small lymphocytes. In only one instance was a basophilic degeneration found. There is usually some anisocytosis and poikilocytosis.

Nearly all chronic cases exhibit one or all of the following symptoms: metallic taste, anorexia, nausea, abdominal pain and tenderness, constipation and colic. The constipation is often extremely obstinate. General malaise and asthenia are early symptoms and are often accompanied by insomnia, dizzy spells, and lethargy.

In an individual who works with his hands a great deal, paresthesias in the hands and fingers, weakness of the grip and weakened power of dorsiflexion of the wrist may be the first signs of chronic plumbism. These are due to a beginning interstitial neuritis and are probably the most important pathologic changes in chronic lead poisoning. If this condition continues, it results first in a neuritis along the course of the nerve and later in wrist drop, toe drop, shoulder drop, or head drop. After a time the muscles may undergo atrophy and the opposing set of muscles contract.

Headache is the most common symptom presented by the nervous system. This is sometimes constant and is often very severe.

Marked tremor of the fingers, tongue, lips and eyelids is nearly always present. This may be accompanied by muscular incoordination and possibly fibrillation. In the early cases the reflexes are usually hyperactive; later diminished. The pupils may be irregular and springy.

The lead line is one of the most constant signs. More than 90 per cent of all cases had well marked lead lines. These were very readily demonstrated by lifting the margin of the gum away from the tooth with a thin, white tooth pick. Most of the patients had very bad gums and teeth also.

Among women, irregularities of menstruation are a common result of plumbism. They are also more subject to abortion.

In long standing cases of plumbism, a fibrotic change occurs in the blood-vessels and many of the organs. In many cases the liver becomes fibrotic, the kidneys contracted, heart valves sclerosed, and the vocal cords thickened. The latter often results in a tremulous voice.

Diagnosis.—In order to accomplish the best results in treatment, the diagnosis of plumbism should be made early. To prevent the more severe effects of the lead—encephalopathies, lead colic, wrist drop, optic atrophy, nephritis and arteriosclerosis—the diagnosis must be made and treatment instituted while the disease is in its incipience.

One of the greatest aids is a history of exposure. Pallor of the skin, muscular weakness, headaches, general asthenia and malaise, paresthesias, anorexia, constipation or perhaps diarrrhea, rheumatism, muscular soreness, abdominal tenderness, colic and nervousness are all symptoms which should be carefully weighed in any worker exposed to lead.

The lead line is of considerable value as a diagnostic point in all chronic cases, and often in acute cases.

Lead colic may sometimes be confused with appendicitis, intestinal obstruction, or gall stones. In lead colic, however, the temperature is rarely increased, the pulse is slow and hard, and the blood-pressure usually increased. There is little if any leukocytosis, and no abdominal rigidity.

In acute cases, basophilic stippling and resistance to hemolysis of the red cells may be of value in diagnosis. In chronic cases there is commonly a mononucleosis of from 10 to 35 per cent.

Prophylactic Treatment.—By means of proper prophylactic measures, lead poisoning could be greatly reduced, if not wholly prevented, in industry. This means the removal of dust and fumes, and the provision of clean working rooms, adequate ventilation, lunch rooms, drinking and washing facilities, locker rooms and

capable medical supervision. Frequent periodic examination of all workers exposed to lead is a necessity, as is also the education of the workers along the lines of personal hygiene.

Many of the men take magnesium sulphate several times a week as a preventive. This is of some value. In some factories calcium sulphid in one grain tablets is given to the men daily. This forms the more or less insoluble lead sulphid, which passes out in the feces.

Curative Treatment.—In curative treatment, the first thing is to remove the patient from the source of the poisoning. After this, potassium iodid, in from 5 to 10 grain (0.324 to 0.650 gram) doses, three times a day is given. This is supposed to liberate the lead which has been deposited as an albuminate and permit its excretion through the kidneys. It is wise to begin the treatment with small doses as the lead is liberated in soluble form and may cause an increase in the symptoms.

For the constipation, magnesium sulphate is best as it aids in the prevention of absorption through the intestines by the formation of an insoluble compound.

Benzyl benzoate may be used for colic and also hot applications and morphin or atropin when necessary.

In cases of convulsions, the bowel should be washed out with warm water containing mustard and this followed by an enema containing chloral or bromids.

For paralysis, massage and the galvanic current are of the greatest value. In case of wrist drop, the hand should be placed on a splint to prevent contraction.

Prognosis.—(1) Cases in which the patients continue to be exposed to the lead under the same conditions steadily progress.

(2) Patients with lead poisoning who continue to be exposed under the same conditions but who lessen or abolish the absorption of lead through the observance of proper hygiene usually tend to improve.

(3) Patients with lead poisoning who continue to be potentially exposed but whose absorption of lead has been decreased or abolished through improvement in working conditions usually tend to improve.

(4) Patients with lead poisoning who remove themselves entirely from the source of the poisoning usually recover.

In mild cases, the prognosis is good. In the encephalopathies the outlook is worse, for permanent mental symptoms may follow. Some severe cases are fatal. Patients with wrist drop usually recover unless there is muscular atrophy when there is usually some permanent weakness present.

R. H. BENNETT.

FEDELE, F.: **Primary Lymphosarcoma of the Tonsil** (Linfosarcoma primitivo della tonsilla). *La Riforma Medica*, 1921, xxxvii, No. 5, p. 100.

In the case of reddening and swelling at the right submaxillary region an attending physician made an incision to evacuate the pus. For one month the patient was without trouble, but soon intermittent pain occurred in the right ear, becoming more and more painful and extending to the occipital region. Tumefaction rapidly developed and swallowing was disturbed. In the oral cavity, the right pillar appears bulging. The mucous membrane was bluish-red and the median surface ulcerated. There was necrosis at the fundus of the ulcer, which bled easily. The tumefied area was irregular and hard to touch, and seemed adherent to the fundus. Blood examination: Hemoglobin 40; hemoglobin value 0.57; red corpuscles 3,500,000; white blood corpuscles 5000. Leukocyte formula: lymphocytes 20 per cent; large mononuclears 7 per cent; neutrophils 70 per cent; eosinophils 3 per cent. Wassermann negative.

The tumor was separated with good results. It grew rapidly from the right tonsil, had occasioned metastasis in the regional lymphatic glands, showed sloughing and slight tendency to local infiltration. Traits of sarcoma, by histological examination, revealed adenoid stroma with some small fibers. It was histologically an atypical lymphosarcoma according to shape and character of the nuclei, character of the cytoplasm, cellular dimensions and lymphoblasts. There was a tendency to infiltrate the pharyngeal membranes.

Many authors have considered histological eosinophilia as pertaining to an inflammatory process and as due to necrotic stimulus. They had observed accumulation of eosinophil around infiltrated zones which contained scarce cells or around dead zones.

SECTION ON LABORATORY AND RESEARCH

BARBOUR, H. G., AND RAPOPORT, F. H.: A Comparison of Rectal With Colon Injections of Epinephrin, with Reference to Pressor Effects and to Glycosuria. *Journal of the American Medical Association*, Feb. 19, 1921, lxxvi, No. 8, p. 492.

Although drugs used for their systemic effect are frequently given by rectum, distinctions between the results of high colonic and low rectal administration have not been sought. The significance of such discrimination lies in the fact that the absorption from the terminal portion of the mammalian intestine takes place by way of the middle and inferior hemorrhoidal veins directly into a branch of the vena cava. The colon, on the other hand, is drained by the portal system, before the general circulation is reached, and the liver and its capillaries are interposed as a barrier.

Two series of experiments were performed on rabbits to determine the effect of the injections of epinephrin on the blood-pressure and on the carbohydrate metabolism.

The Blood-pressure Effects.—The rabbits were anesthetised by urethan and after the onset of the anesthesia a midline incision was made in the abdominal wall just above the symphysis. The sigmoid rectum was doubly ligated at about 5 cm. (2 inches) above the anus, the vessels being included. Intestines and vessels were then cut transversely across between the ligatures. Blood from below this point in the intestine drained therefore into the systemic veins while that above drained into the portal system. Injections were made through glass cannulas inserted and saturated into the two parts of the intestine.

Summary of Results on Blood-pressure.—(1) An injection of

1 mg. (.0154 grain) of epinephrin per kilogram (15432.3487 grains) caused greater increase in blood-pressure when given by rectum than when injected into the colon. The average increase after rectal injection was 11.5 mm. Hg., and after colon injections 4.2 mm. Hg.

(2) The highest rise of blood-pressure observed in all of the experiments, due to an injection of epinephrin into the rectum, was 28 mm. while the highest from injecting the colon was 12 mm.

(3) The earliest effect of injection into the rectum was seen in thirty seconds while in the colon the earliest effect was one hundred and fifty seconds.

(4) The average time for the maximal effect in the rectal injections was one hundred and forty-one seconds; after colon injections, two hundred and seventy-five and eight-tenths seconds.

Effects On The Amount And Sugar Content Of The Urine.—The injections were made after a twenty-four hour fasting period and after the bladder had been emptied by pressure over the symphysis and the urine found sugar-free. In the rectal injections the epinephrin was injected a distance of 5 cm. (2 inches) by means of a tube. The tube was retained ten minutes and the anus closed by a serrefine. The colon injections were made on a distance of 16 cm. (6 inches) and the tube held in position ten minutes.

Summary Of Effects On The Carbohydrate Metabolism.—(1) Colon injections of epinephrin in rabbits gave more profound glycosuria and diuresis than rectal injections.

(2) The average amount of dextrose obtained from injecting 0.5 mg. (.077 grain) per kilogram (15432.3487 grains) into the colon was 0.158 gram (2.315 grains), while from rectal injection it was 0.088 gram (1.253 grains).

(3) The greatest amount of dextrose obtained from colon injection was 0.208 gram (3.211 grains), while the greatest amount from rectal injection was 0.121 gram (2 grains).

(4) The average twenty-four hour urine volume after injecting into the colon was 142.5 c.-c. (5 fluidounces, 11½ fluidrams); after rectal injection it was 120 c. c. (3.38 fluidounces, 5.42 fluidrams).

R. H. BENNETT.

PARK, W. H., WILLIAMS, A. W., AND KRUMLHOLTZ C.: Microbial Studies on Acute Respiratory Infection with Especial Consideration of Immunological types. *The Journal of Immunology*, Jan., 1921, vi, No. 1, p. 1.

The problems investigated were: (1) A study of the microorganisms of the upper respiratory tract in "health", in "common colds" and in "influenza". (2) Study of hemagglutinating bacilli for the purpose of establishing the relationship of the influenza bacillus to both pandemic and sporadic cases of influenza. (3) A study of the permanence of type characteristics of influenza bacilli in persons after recovery from respiratory infections. (4) A study of the incidence of common colds, influenza, and pneumonia following the controlled use of vaccine.

The results of the studies indicate that of the different groups of the microorganisms isolated, all had the peculiarity that each group was an assemblage of many types. There was no evidence of a common filtrable organism. The evidence of immunological response to vaccine was apparent only in the lessened incidence of pneumonia. The percentage of colds was as great among the vaccinated as among the unvaccinated. The pneumonia incidence was much less. The greater multiplicity of types of microbes believed to be capable of exciting common colds over those usually exciting pneumonia, is possibly the explanation of the apparent uselessness of the vaccines employed in this series in preventing minor respiratory infections while apparently affording considerable protection against pneumonia.

LINTZ.

EBERSON, F., AND ENGMAN, M.: An Experimental Study of the Latent Syphilitic as a Carrier. *Journal of the American Medical Association*, 1921, lxxvi, No. 3, p. 160.

In the Washington University Clinic 75 out of 500 syphilitics were selected as latent cases. In 15 per cent of these cases symptoms had appeared in from one to forty years previous. Healthy full-grown male rabbits were inoculated with blood, semen, spinal fluid, and nasal washings, the injections being made into the testes.

Fourteen inguinal glands from different patients were inoculated into rabbits' testes. Of this series three died within three months, showing no signs of infection. Positive results were obtained with glands from three patients, two female and one male. Animals inoculated with blood specimens from these three patients were negative. The Wassermann reaction after antisyphilitic treatment had been negative, and positive only in cholesterol antigen, while the proof of active, virulent spirochetes was given in the glands. In the series of inoculation of semen from different patients four rabbits died within one month and two within three, after injection, showing no signs of syphilis.

In two instances semen was found to contain active, virulent spirochetes. A positive inoculation was obtained with semen from a patient with a positive Wassermann reaction only in the cholesterol antigen. This man had had syphilis thirteen years previous.

Inoculation with defibrinated as well as with clotted blood, inoculated for from three days to four months resulted negatively. The same was the case with spinal fluid inoculation and those inoculated with nasal washings. The results of inoculation with tonsils were doubtful, as the rabbits died from streptococci in four days.

"It appears from this investigation, and that of others, that the blood and other body fluids, excepting semen, are not infectious in latent syphilis, or if so, but rarely."

HEHEWERTH, F. H., AND KOP, W. A.. **The Wassermann Test in Patients Affected with Malaria in the Tropics.** *The Journal of Hygiene*, 1921, xix, No. 3, p. 277.

In Java the author made tests in 44 malaria patients. In natives 50 per cent showed a positive Wassermann reaction. It may persist for from three to six months or throughout treatment, but in such cases the reaction is generally weaker. It usually vanishes under quinin treatment, so that practically "in a heavily infected malarial country a positive Wassermann reaction cannot be considered as due to syphilis if there is no special evidence in favor of syphilis. If after a good quinin treatment a positive Wassermann reaction becomes negative or distinctly weaker, without antisyphil-

itic treatment, probably the positive Wassermann was a sequel of malaria. "Especially in natives a positive Wassermann reaction does not permit of conclusions without careful consideration, a positive result of course will be as valuable as elsewhere."

Emphasis is laid on avoiding heating of the serums and giving the Wassermann test within three months of a malaria attack. The author differs from Sutherland and Mitra, in considering it wrong to advise a test not more than a week after the attack.

MOSENTHAL, H. O.: **The Influence of Protein Food on Increased Blood-pressure.** *The American Journal of the Medical Sciences*, Dec., 1920, clx, Part 6, No. 585, p. 808.

Blood-pressure determinations were made on 9 patients, and from the author's observations it appears that it is exceptional for a low protein diet to diminish the blood-pressure or a high protein diet to increase it. The diminution of the waste products in the blood was indicated by a lowering of blood urea nitrogen without effect upon the blood-pressure. Changes in the caloric value of the diet for a short time only did not influence the blood-pressure; but a subcaloric mixed diet may be continued for a considerable period probably with a beneficial effect. The amount of diet should be regulated according to the hemoglobin content of the blood, which should not fall below 85 per cent.

A. T. MAYS.

BUCKMAN, T. E., AND HALLISEY, J. E.: **Studies in the Properties of Blood Platelets.** *The Journal of the American Medical Association*, Feb. 12, 1921, lxxvi, No. 7, p. 427.

Procedure.—Blood is obtained from the vein and allowed to flow into a miniature transfusion tube, evenly paraffined, attached to a paraffined hypodermic needle, of 18 gauge. This tube has a capacity of 6 c. c. (1.62 fluidrams.) As the blood wells up into the tube, the tip of a red cell pipette is introduced and blood drawn up to the 0.5 mark. The pipette is immediately filled with the diluting fluid to the 101 mark and shaken for three minutes. A drop

from the pipette is then mounted in a counting chamber in the usual manner. At the end of three minutes a red count may be made and at the end of five minutes a white count can be made. When the specimen has stood for twenty minutes, all the platelets will have settled out and a platelet count may then be made, the high dry objective being used and four square millimeters of the field being counted. A second and if need be a third drop is taken and the average made. The count may be made as long as four hours after the taking of the specimen.

Diluting Fluid.—Six grams (92.60 grains) of glucose and 0.4 grams (6.172 grains) of sodium citrate are dissolved in 100 c. c. (3.38 fluidounces) of distilled water and the solution is filtered. To this are then added about 0.02 grams (3-8 grain) of toluene red. Solution is slow but ultimately clear. To this is then added 0.1 gram (1.543 grain) of crystal violet, and the solution is gently heated to 60° C. (140° F.) and held there for five minutes. It is allowed to cool slowly to room temperature and centrifuged for ten minutes at 2000 revolutions per minute. The supernatant fluid is then filtered twice, each time through three thicknesses of No. 30 Whatman filter paper (dry). The solution is preserved by adding 0.2 c. c. (3.2 minims) of formaldehyd solution.

The method has the advantages that the blood collected in the paraffin tube is as unaltered as can be obtained, that the method gives uniform results, and that the remainder of the blood can be used to determine the clotting time.

The results of platelet counts made in 36 cases given were made by three methods, namely, Pratt's, Ottenberg's and the above method. In 12 other cases Gram's and the Wright and Kinnicut's methods were used. The counts obtained by the different methods do not differ substantially. The above method yields counts slightly higher than the others, especially when the number of platelets is great.

R. H. BENNETT.

SELLERS, A.: Blood Changes in Lead Workers. *Journal of Industrial Hygiene*, 1921, ii, No. 10, p. 361.

At the Public Health Laboratory, Manchester, blood examina-

tions were made on 21 men who had been exposed to lead for from ten months to twenty-five years. The blood was usually taken from the ear, or from the finger. The white cells were counted with the ordinary white counting pipette.

The definite and easily recognizable blood changes present in a large proportion of cases, were a diminution of (1) the hemoglobin, and (2) of punctate red cells. Usually in these cases a blue line on the gums was or had been present. Red punctate cells are found in a very small number of apparently healthy individuals, fairly frequently in various diseases and in cases of poisoning by other agents than lead. In lead poisoning they are comparatively numerous; frequently several are seen in almost every field.

The corpuscles containing the granules sometimes, but not always, appear larger than the normal. They often show an increased affinity for the blue stain. Their proportion in lead poisoning was about 100 per million.

Some of the men were in a critical state, either actually suffering from lead poisoning of a mild type, or threatened with an attack. Only in 5 of 21 cases there were no definite changes. If the standard of 300 punctate red cells per million were accepted at least 14 men would have been suspended from work. The blood examination does not give a fair estimate of the clinical state of health of lead workers.

BLOEDORN, W. A., AND HOUGHTON, J. E.: **The Occurrence of Abnormal Leukocytes in the Blood in Acute Infections; Acute Benign Lymphoblastosis.** *Archives of Internal Medicine*, March, 1921, xxvii, No. 3, p. 315.

Four cases of an unusual acute disease, occurring at the U. S. Naval Hospital at Annapolis during the past year are reported. They were very similar to 6 cases reported recently by Sprunt and Evans, of Johns Hopkins Hospital. The 4 patients were all young men, who were affected with mild upper respiratory infections, a low fever running for several weeks and gradually becoming intermittent. All showed a well-marked general adenopathy and 2 enlarged spleen. The presence of the organisms of Vincent's angina was noted in 3 cases, but this finding was discounted by the fact that

several other cases occurred about the same time in which the same organism was found, but which differed markedly from the cases under discussion. The leukocytes were normal in number in 2 of the cases, and in the other 2 ran from 20,000 to 30,000. In all there was a marked preponderance of lymphocytes, varying in size from that of a red cell to larger than the usual transitional. The predominating type of cell was the lymphoblast, and the Rieder type of lymphoblast was frequently seen. None of these cells showed an oxidase ferment, thus differing from those of myelocytic origin. The blood picture of this type of case bears great similarity to that of acute lymphatic leukemia. However, the total white count never becomes so large that it could not be accounted for as the result of reaction to acute infection; there was no tendency to hemorrhage and no degenerated or fragile cells were noted in the smears. The term "acute benign lymphoblastosis" is suggested as covering this class of case.

T. HOWARD.

HAMMETT, F. S.: **Creatin and Muscle in Man.** *Journal of the American Medical Association*, Feb. 19, 1921, lxxvi, No. 8, p. 502.

The work was done on 2 patients, a man and a woman, during and on emergence from a catatonic stupor. The results show a condition of creatinemia coincident with the emergence from catatonic stupor when the normal muscle tone is beginning to be reestablished. The results are interpreted as supporting the opinion that creatin is an end-product of the catabolism of certain precursors in the protein molecule, and particularly that phase of muscle-protein catabolism associated with the condition of muscle tonus.

R. H. BENNETT.

MACHT, D. I.: **On the Absorption of Local Anesthetics Through the Genito-urinary Organs.** *The Journal of Pharmacology and Experimental Therapeutics*, Jan., 1921, xvi, No. 6, p. 435.

Macht summarizes his articles as follows:

(1) The local anesthetics, cocain, alypin, and apothessin, were

studied in regard to their penetration through and absorption from various genito-urinary organs.

(2) It was found that these drugs are more or less readily absorbed through the urethra, ureters, pelvis of the kidney, præputium and vagina.

(3) It was found that while the local anesthetics were readily and rapidly absorbed from the urethra, they were poorly absorbed from the urinary bladder.

C. A. SCHMID.

VERZAR, F.: Consumption of Oxygen by the Muscles, in Diminished Oxygen Supply. (Der Sauerstoffverbrauch des Muskels bei verminderter Sauerstoffversorgung. *Pflügers Archives für die gesammte Physiologie*, 1920, clxxxiii, 239.

In former laboratory research, the muscle fibers had been found to be dependent upon the O_2 pressure in the capillaries. The author deducted that, as acute diminution in the oxygen gave this result, in slower circulation or on thinning of the blood, decreased O_2 consumption would also be the consequence. In these cases of O_2 pressure in the capillary blood would be lower than under normal conditions.

The author proves by experiment that the O_2 pressure in arterial blood is diminished by insufficient O_2 contents of the breathing atmosphere, or in case of obstruction of its reception into the blood, of the lungs. It is further diminished, on diminishing the circulatory speed, when decrease of blood-pressure or change in the vessel-tonus set in. It is further diminished by decrease of blood-concentration, on diminution of the number of red blood corpuscles—sometimes only of the hemoglobin-contents.

The tests were carried on in the isolated musculus gastrocnemius of the cat. The decrease in O_2 consumption on diminishing the circulatory speed or the blood concentration is due to the diminished O_2 pressure, in the capillary blood of the muscle fibre.

The muscle glandulae sub-maxillaris seems to make an exception, and there appears to be a very high O_2 pressure at this point. for the O_2 consumption, there, is not increased, even when a great diminution in the O_2 pressure occurs.

MACHL, D. T., AND BLOOM, W.: **Physiological and Pharmacological Studies of the Prostate Gland.** *Journal of Urology*, 1921, v, No. 1, p. 29.

The authors studied the question whether the prostate gland had an internal secretory activity as well as an external one, on prostatectomized rats. Guisý had reported on 31 cases of prostatic hypertrophy in patients between fifty-seven and sixty-seven years of age of whom 3 exhibited psychopathic disturbances of the hallucinatory and melancholic type. In 7 cases of prostatic cancer 1 patient suffered from melancholia and optic hallucinations. Among 4 cases of tuberculosis of the prostate he found a man suffering from cerebral depression. He encountered 2 cases with profound depressive psychoses among 17 patients in whom complete prostatectomy had been performed some time previously. Other authors reported similar experiences.

Prostatectomized rats showed no differences of behaviour or memory habit from nonprostatectomized rats.

These observations led to the conclusion that the endocrine function of the prostate gland bears no relation to the mental efficiency of the animals.

BULGER, H. A.: **Blood Changes in a Case of Hemophilia after Transfusion.** *The Journal of Laboratory and Clinical Medicine*, Nov., 1920, vi, No. 2, p. 102.

The author reports a case of hemophilia giving the results of his study of the changes in the factors of coagulation in that condition.

It is well recognized that the results of transfusion in hemophilia are temporarily beneficial even if they are not permanent. How lasting the results are is not definitely known. Information on this question would be of value as indicating whether the degree of change is great enough to allow operative procedure.

Minot and Lee report a case with coagulation time of 150 minutes. After transfusion of 600 c. c. of human blood (method not stated), the coagulation time was normal, but in three days it was sixty minutes and in five days one hundred minutes. Addis reported 2

cases. In 1, injected intravenously with 15 c. c. of human serum, the coagulation time was sixty-two minutes before and twenty-four minutes after injection. After twelve days it had risen to one hundred and twenty-seven minutes, but in three weeks had fallen to eighty-six minutes. The second case was transfused with 300 c. c. of phosphated blood. Before transfusion the coagulation time was two hundred and forty-five minutes; after transfusion twenty-four minutes. After twenty-five days the coagulation time was two hundred minutes and at that time 8 c. c. of human serum injected intravenously brought it down to thirty-eight minutes.

The case sighted by the author is as follows: A boy of fourteen years, with a typical family history of hemophilia, had attacks of swelling of the joints and at one time very serious bleeding after the extraction of a tooth. For the past five years he had repeated attacks of hematuria, averaging about two weeks in duration. Three weeks before admission, following whooping cough, blood appeared in the urine again, and the night before admission his left knee became greatly swollen. During his stay in the hospital the hematuria gradually disappeared, but the other knee became swollen, and later both elbows became involved. He was transfused with 300 c. c. of his mother's blood by the citrate method, and following this the swelling gradually subsided. Eleven days after transfusion his right elbow and ankle showed fluctuant swelling again but this rapidly subsided. Hematuria did not recur.

Just before transfusion and at various intervals following, blood was obtained by venipuncture in a glass syringe rinsed in salt solution. Part of the blood was used to determine the coagulation time while the remainder was oxalated and the oxalated plasma separated. On most occasions a normal control specimen was obtained in a like manner. With each specimen of oxalated plasma the "so-called" prothrombin time was determined by the method described by Howell and also the effect of adding thromboplastin solution on the coagulation of the oxalated plasma.

Summary.—The day following transfusion the blood was practically the same as the control, but the coagulation time and prothrombin time gradually lengthened. One month later they were still less than before the transfusion. There was no marked change in the blood found to correspond to the slight bleeding into the joints found on the eleventh day.

The effect of thromboplastin on the clotting of the oxalated plasma is of interest in relation to the cause of hemophilia. It has been suggested that hemophilia is due to insufficient prothrombin in the blood, but in this case the addition of thromboplastin to the oxalated plasma caused it to coagulate as well as the normal control. This suggests that there was sufficient prothrombin and that thromboplastin was lacking.

C. M. ANDERSON.

KRAFT, A.: **Hemolytic Streptococci of the Appendix Vermiforms.** *Journal of Infectious Diseases*, 1921, xxviii, No. 2, p. 122.

Former publications on streptococcus in appendicitis did not clearly show the nature of the organism, and failed to define whether they were hemolytic or nonhemolytic. To investigate this question 175 appendices were examined and hemolytic streptococci found in 2 of 48 normal appendices, and in 4 of 77 pathologic appendices. In chronic inflammation they were not found at all. In the normal they were few in number; in the pathologic they were very numerous and occurred in practically pure cultures. The types which were found were streptococcus infrequences and streptococcus hemolyticus.

"Hemolytic streptococci apparently do not play an important rôle in the production of appendicitis; however, when they occur in the pathologic appendix, they usually predominate and appear to be the principal etiologic agent."

JACKSON, J. A.: **Interpretation of Wassermann Reaction of Blood-serum in Mental Disease.** *The Journal of the American Medical Association*, 1921, lxxvi, No. 6, p. 360.

Jackson shows in reporting on several groups of patients, treated at the State Hospital for the Insane, that in mental diseases, positive Wassermann reaction in the blood-serum does not always signify syphilis, and the necessity of instituting antisyphilitic treatment. It does not mean that the mental disorder from which a patient suffers is due to syphilis. The positive reaction of the blood-

serum alone, means that the individual has, in some manner, come into contact with either hereditary or acquired syphilis. Neurosyphilis must be diagnosed on definite neurologic signs and on spinal fluid reactions, not of that of the blood-serum. Psychoses, with no other findings of a syphilitic nature than positive Wassermann blood-serum reaction, do not call for an antisyphilitic treatment, which will not change the mental condition.

"Syphilitic treatment avails nothing in well advanced cases of general paresis or 'tabes dorsalis.'"

A well developed psychosis, in neurosyphilis, is a very rare coincidence.

Systemic syphilis, when existing, should be treated by anti-syphilitic means. Cerebral, cerebrospinal and spinal syphilis are amenable to treatment.

All syphilitics should be kept under observation, and if necessary, under treatment, for ten years.

DEWITT, L. M.: **Mercury Compounds in the Chemotherapy of Experimental Tuberculosis in Guinea Pigs.** I. *Journal of Infectious Diseases*, 1921, xxviii, No. 2, p. 150.

The general opinion is that mercurials have a good effect on tubercular patients, but that mercury is in no way specific in tuberculosis. The author found but one report in literature on its use in experimental tuberculosis in animals. Robert Koch stated that mercury in vapor form inhibited the growth of the tubercle bacillus in the test tube, but was entirely without influence on the progress of the disease in animals.

Mercurials have been used in clinical treatment of human tuberculosis with favorable results. Tests were made on guinea pigs of the bacteriostatic and therapeutic power of mercuric chlorid, mercury sulphocyanid, potassium cyanid, mercuric salicylate, mercuriol, etc.

The results seem to justify future work with mercurial compounds in the chemotherapy of experimental tuberculosis. Guinea pigs are more susceptible to tuberculosis than is the human being and "responds to infection with a more rapidly progressive and fatal disease than does man.

HEATHCOTE, R. ST. A.: The Action of Caffein, Theobromin and Theophyllin on the Mammalian and Batrachian Heart. *Journal of Pharmacology and Experimental Therapy*, Dec., 1920, xvi, No. 5, p. 321.

A preliminary review of the literature is given. Caffein was used as a free base as it is fairly easily soluble in Locke's solution. Theobromin was also used as the free base while theophyllin as the free base could not be obtained and theocin was used as the double salt with sodium acetate.

The experiments were performed on frogs' and rabbits' hearts.

The object of this work has been (1) to obtain a clear idea of the action of these drugs on the frog's heart, both absolutely and comparatively; (2) to supplement the work of earlier investigators; and (3) to examine and compare their action on the mammalian heart with especial reference to the coronary flow.

It has been shown that in the excised heart of both frog and mammal these drugs accelerate and augment the heart beat when perfused in suitable dilutions. The action is due to direct stimulation of the cardiac muscle by the drug.

It was found that all three drugs when perfused through the rabbit's heart increased the flow through the coronary vessels. The increased flow might be due to the increase in rate and amplitude, or to the direct vasodilator action on the coronary vessels. The author states that, because in some of the experiments where the rate and amplitude were increased, the coronary flow was not increased, and that in others where the rate and amplitude was not increased that the coronary flow was increased. The increase would seem to be due to a vasodilation, produced by a direct action of these drugs on the vessel wall.

If, as has been thought by some, the cause of cardiac asthma and angina pectoris is to be found in a condition of spasm of the coronary arteries it would be reasonable to attempt to combat these diseases by the use of these drugs. Of these drugs theobromin and theophyllin are to be preferred because they have a stronger action than caffein.

R. H. BENNETT.

is probably because these preparations are heated and sterilized very soon after being obtained from the cow. Small outbreaks of choleraiform diarrhea occur during the summer months, but it has been impossible to prove that the cases were due to the milk of any one dairy. A list is given of the various bacilli which have been incriminated in the past as causing this condition but there is no proof that they are etiological agents. Some of the supporters of the theory that choleraiform diarrhea is an endogenic infection state that the virulence of the normal stool flora may become exalted. Equally virulent organisms however are found in the stools of normal individuals. Others claim that the stool organisms invade the upper part of the small intestine and by their irritating action cause choleraiform diarrhea but this is probably a secondary invasion occurring during the agonal period. The endogenic infection hypothesis cannot explain why choleraiform diarrhea is never seen in exclusively breast-fed infants, why it can occur after only two or three feedings of cows' milk and why it may occur suddenly in infants previously healthy. Another theory is advanced that choleraiform diarrhea is an ectogenic intoxication. This toxin may either be produced as a product of the growth of the bacteria contaminating milk and resemble the toxin of food poisoning, or the poison may exist in the milk because of some peculiarity in the cow's diet such as is seen when cows eat beet tops in October or spoiled beets. Marfan believes that choleraiform diarrhea is caused by a toxin-forming organism in milk (ectogenic infection), rather than that the milk contains the toxin itself (ectogenic intoxication), for in none of his cases of choleraiform diarrhea was the milk completely sterilized so that all of the bacteria were killed. Finkelstein stated that cows' milk could cause a diminution in an infant's tolerance so that any of the constituents of milk might act as a poison and produce choleraiform diarrhea (alimentary intoxication). That this theory is erroneous is seen from the fact that stopping cows' milk and giving nothing but water does not always cure these cases and also that choleraiform diarrhea may follow only two or three feedings of cows' milk. The belief that choleraiform diarrhea is due solely to the excessive heat is wrong, for in experiments with dogs exposed to high temperatures digestive symptoms were inconstant and always a late manifestation and more probably related to a diminution in the digestive secretion and in the powers of resistance to

infection. True heat stroke and choleric form diarrhea are fundamentally different conditions, the former occurs only in the summer while the latter is occasionally found during the winter. The former is frequently cured by cold baths. Marfan gives a detailed account of one of his cases of heat stroke. The increase in the mortality in Baby Hospitals on very hot days is probably due to heat stroke. The above explanation of the etiology of primary choleric form diarrhea is applicable to secondary cases that follow other diseases. Marfan believes that the fundamental element common to choleric form diarrhea in infants, to cholera nostras in adults, to asiatic cholera, and to the severe diarrhea following arsenic poisoning, bronchopneumonia, miliary tuberculosis and malaria, is an alteration in the intestinal epithelium and a diminution in its power to neutralize or destroy the toxins in the alimentary canal (toxicolytic function). The severity of the symptoms possibly depends upon the area of intestinal epithelium affected. It is also possible that the liver cells may be injured.

A. T. S. DAVISON.

LEENHARDT AND SENTIS: **Congenital Myotonia (Oppenheim) and Werding-Hoffman's Disease Are the Same Condition.** *Archives de Medicine des Enfants*, Paris, Mar., 1921, xxiv, 137-158.

Two instances of fatal paralysis are reported. The first patient was apparently normal until the age of three months although he had never cried. At nine months, all of the muscles except the diaphragm and those of the face were flaccidly paralyzed. Apparent improvement was noted at eleven and one-half months, but the paralysis of the respiratory muscles increased and the patient died at the age of fifteen months in a state of apnea. The second patient was similarly paralyzed from birth, and died at the age of four and one-half months. Both infants were well nourished, had thick adipose tissue, and were of intelligent appearance. Their thoraces collapsed during inspiration, and their muscles were atrophied. Their spinal fluids were normal. It was impossible to state whether these were cases of Werding-Hoffmann's disease or of myotonia (Oppenheim), for the former is reported to be familial, to begin in early infancy, to have muscular atrophy and the elec-

trical reaction of degeneration, and to be progressive, terminating in death. The latter is claimed to be nonfamilial, to be congenital, not to have true muscular atrophy, the muscles merely being soft and flaccid and to gradually improve. An analysis of many of the clinical and pathological descriptions of these two syndromes has led the authors to believe that they are identical. Both are characterized by flaccid paralysis of all muscles except the sternocleidomastoid, the diaphragm and those of the face. Tests of the reflexes in infants are not sufficiently accurate to constitute a differential point. There is no pseudohypertrophy, nor disturbances of sensation, intelligence or general nutrition in either conditions. An inconstant familial tendency has been reported for each disease. Both are probably congenital for it is often impossible to diagnose flaccid paralysis during the first few months of life. Instances of each syndrome have been described as congenital and as occurring at the age of one year. Autopsies have demonstrated muscular atrophy in both conditions. The mortality in each disease is practically the same, death by apnea being the rule. The only spinal cord lesion is a diffuse alteration of the anterior horn cells. The nerve changes are limited to the motor fibers and consist in a retardation of myelination, a persistence of the fetal state and degeneration. These findings are common to both diseases. They should be classed together and the condition called chronic diffuse poliomyelitis of infancy.

W. C. DAVISON.

WORINGER, P.: The Ventricle Form of Meningococcus Meningitis.

Archives de Medicine des Enfants, Paris, Mar., 1921, xxiv, 159-168.

The first case was that of an eight-months old girl whose twin sister had died of convulsions two months previously. Six weeks before admission the patient had convulsions for one day. She was apparently well for the next three weeks. Her body then became stiff; she had opisthotonus; she was somnolent and became progressively weaker. Her fontanelle was bulging on admission. A lumbar puncture was done and only 2 c. c. (32.4 minims) of bloody purulent fluid was obtained. This was sterile. The tuberculin and Wassermann reactions were negative. The patient died eight days after admission. At autopsy thick pus containing meningococci was

demonstrated at the base of the brain and in the ventricles. The second case was that of a seven-weeks old boy who developed left-sided convulsions at the age of four weeks. He became somnolent, his fontanelle bulged and his neck was slightly stiff. Only a few drops of bloody purulent sterile fluid could be obtained by lumbar puncture. The patient became progressively worse so a ventricular puncture was done and 10 c. c. (2.71 fluidrams) of purulent fluid containing meningococci were obtained. Three intraventricular injections of antimeningococcus serum were given. There was no improvement. The patient was taken from the hospital two weeks later and died after a few days at home. There was no autopsy. The author regards these cases as primary meningococcus ventriculitis, as contrasted with the secondary ventriculitis that frequently follows spinal meningitis. He suggests that the infection travels from the rhinopharynx through the cribriform plate to base of the brain, although blood stream infection cannot be ruled out. He advises that these cases be treated intraventricularly with antimeningococcus serum as early as possible.

W. C. DAVISON.

LE MAIRE, H., AND STIASSNIE: **Case of Chronic Meningitis of the Vomiting Type.** *Le Nourrisson*, Paris, Nov., 1920, viii, 362-367.

This patient at the age of twenty months commenced to vomit one hour after each meal. Two days later his temperature became elevated. The vomiting and fever persisted for two months and the patient was then brought to the hospital. Except for emaciation, the physical examination was negative. There were no signs of meningitis. However, a lumbar puncture was done. The spinal fluid was slightly cloudy but sterile. Its Wassermann was positive. Two cutaneous tuberculin reactions were negative. Inunctions of mercury were given but the patient developed tonic convulsions two weeks after admission to the hospital and died two days later. The autopsy demonstrated the presence of chronic meningitis, ependymitis and internal hydrocephalus.

A. T. S. DAVISON.

SECTION ON ROENTGENOLOGY AND ELECTRO- THERAPEUTICS

BAETJER, F. H., AND FREIDENWALD, J.: **Roentgenological Aspects of Lower Right Quadrant Lesions.** *The American Journal of the Medical Sciences*, Nov., 1920, clx, Part 5, No. 584, p. 639.

Both bismuth meals and bismuth enemata must be used and examinations are made fluoroscopically and radiographically. If the lumen is patent in a chronic appendicitis valuable information can be gained. If the bismuth remains in the appendix for more than two days, it signifies poor drainage and it is a dangerous appendix. When the appendix is retrocecal the cecum must be pushed aside to visualize the appendix. The writers do not believe that every visualized appendix is pathologic. If chronically inflamed the appendix is adherent to structures around it, and if to the omentum it may drag the stomach toward the lower right quadrant, producing partial obstructions of the pylorus. If subacutely inflamed the bismuth will not enter, and there may be no adhesions. A chronic appendix can be easily mistaken for a duodenal ulcer by the reflex condition, adhesions, and gastric and duodenal hypermotility, with a definite filling defect and deformity of the cap. Incompetency of the ileocecal valve and ileal stasis is noted, if at the end of twenty-four hours after the bismuth meal the ileum is entirely empty, and yet at the end of thirty-six to forty-eight hours the terminal ileum is filled. Delay in passage may be caused by spasm, incompetency of the ileocecal valve, bands of adhesions, displacements, prolapse or tumors, dilatation of the terminal portion of the ileum. Dilatation of the cecum with retention is easily recognized if there is cecal stasis after seven hours, remaining sometimes from forty-eight to one hundred and twenty-four hours. Adhesions are common at the terminal portion of the ileum, causing various degrees of obstruction, or due to pelvic inflammations. In a

patient with pulmonary tuberculosis, intestinal tuberculosis ulcerations are suspected if there is intestinal hypermotility, complete evacuation in from twenty to twenty-four hours, spastic condition of the cecum and cecocolon, and irregular definite filling defects. Ulcerations due to carcinoma show definite filling defect in the cecum. It is large, serrated, and constant on all plates after cleansing by cathartics and enemata. For carcinoma the bismuth enema is par excellence especially if it is in the descending colon or sigmoid. The writers conclude faulty interpretations of shadows lead to wrong conclusions and if the x-ray interpretation is diametrically opposed to all the clinical findings it is probably wise to adhere to the clinical interpretation.

A. T. MAYS.

ALTSCHUL, W.: **Spina Bifida and Other Malformations of the Spine.** (Spina bifida und andere Missbildungen der Wirbelsaeule). *Fortschritte auf dem Gebiete der Roentgenstrahlen*, 1921, xxvi, H. Y., p. 607.

Fuchs has proposed the term myelodysplasia for a syndrome frequently seen in patients suffering from enuresis. There are spasms, disturbances of sensation, especially of temperature, malformation of the lower extremities, for instance syndactily and spina bifida occulta posterior. The author, with the aid of roentgenology, has followed up these statements, and has found that in three-fourths of cases of enuresis deviation of the spine existed.

One of the author's cases, a boy seven years old, had always been suffering from enuresis. There were neither nervous symptoms nor malformation of the lower extremities. Urine was slightly alkaline. A depression could be felt at the region of the spinous process of the first sacral vertebra. The roentgenogram showed that the vertebra was developed in its lateral portion only, and that the gap was located in the median third, and had a well-defined contour. This is the picture most frequently found in patients with enuresis. But there was also a longitudinal fissure in the fifth lumbar vertebra, about 2 mm. (.07 inch) wide, broadening at the ends. The arch of the fifth lumbar vertebra shows a normal shape. There were no changes in the rest of the spine, but a spina bifida posterior

of the first sacral, and a spina bifida anterior of the fifth lumbar vertebra. The latter is rare, especially if occurring in but a single vertebral body. Among the cases of this type which have been recorded there are first hydromeningocele sacralis anterior. In one of the cases there was a large gap in the right side of the second vertebra and a fissure in the median part of the first sacral vertebra. In another the roots of the transverse processes of the twelfth dorsal, and the first to third sacral vertebrae were found, also a fusion of two vertebrae. The author does not consider many of the cases true hydromeningoceles, but hemilevelopment, and in some the gap was not in the median line. Secondly there enter into this group rhachischisis anterior, and a splitting of the entire section of the spine had taken place. It is usually associated with extreme malformation in other parts. Two anencephalous cases are reported where in one there is a wedging apart of the two halves of all dorsal vertebrae, while in the other dorsal and cervical vertebrae were absent where the lumbar vertebrae had holes in the median line. That is, there was a partial bifurcation. In this case the arches were split. Another case of hemicephalus with bifurcation of the spine, as far down as the ninth dorsal vertebra is described, further an anencephalus with bifurcation down to the tenth dorsal, and some cases of bifurcation of the entire spine. In some cases parts of the intestinal tract ended in the fissure of the spine, or the third to sixth dorsal vertebrae were bifurcated and the duodenum ended in the fissure. These all are descriptions from anatomical material. But Oehlecker brings a roentgenogram of a boy six and one-half years of age with congenital kyphoscoliosis with a fissure from the sixth cervical to the eighth dorsal, with wedging apart of the two spinal halves. The last group comprises those cases in which splitting of a single vertebra existed. Several cases have been reported from anatomical material, for instance, from Guys Hospital Museum, a median fissure of a dorsal vertebra: one of a skeleton with median fissure of the tenth dorsal, which was separated 18 mm. (.679 inch) in front, 8 mm. (.28 inch) at the back. There was also a deformation of the spinal cord. In another case, that of a child one and one-half years old, there was a developmental lack of one-half of a cervical vertebra, but there was a cervical rib. The author finds but 12 confirmed cases of entire severing of the two halves of a single vertebra, and 15 incomplete. It is not a splitting that has occur-

red, but a non-uniting. The spina bifida posterior is pretty well explained, as the arches do not unite before the fourth month. But the fissure in the body of the vertebræ has not been formerly explained. Only recently has it been shown that the body consists of several bony centers; and that two distinct lateral parts can be distinguished in early morphology. So complete bifurcation in the body may occur. Pupovac following Kollmann's findings accepts an insufficient union of the canalis neurentericus in meningoceles. The accumulation of fluid—hydroschisis—is no longer accepted as the cause of spina bifida. Newer theories consider abnormal pressure or temperature as causative. A second case of the author is that of an imbecile, sixteen years old, who suffered from enuresis, but showed no deformation of the feet. Between the fifth lumbar and the first sacral vertebra a depression was distinctly palpable. The roentgenogram shows a well-developed fourth lumbar vertebra between its lower border and the upper border of the first sacral vertebra, which was also well developed; there was a gap over which the arch of the fifth lumbar extends. At either side was half a body to which each were attached a transverse process. On this rested the fourth lumbar vertebra. The author is not quite convinced that this was a case of spina bifida anterior; an autopsy might clear this situation.

The third case of a girl eight years old, showed neither nervous symptoms, nor malformation of the feet. She had had incontinence of urine up to her third year of life. There were four little depressions, set at right angles, in the sacrum and a depression was palpable. The body of the fifth lumbar was normal, but the right half of the arch, was shown in the roentgenogram to be lacking. The arch of the fourth lumbar was thin on the right side; the body was deformed. The author further described a case of scoliosis of the spine, where half a vertebra was interposed on the left side between the seventh cervical and the first dorsal which bears a rib, and another half of a vertebra was inserted, also on the left side, below the seventh dorsal, it being a rudimentary eighth dorsal vertebra. On this side there are thirteen ribs, eleven to the left. This case differs from a number of cases, where half vertebræ were interposed, but usually in a compensatory manner, one to the right, one to the left.

Another case of enuresis was that of an idiot, fourteen years old,

without other symptoms of melodysplasia. There was a slight depression in the fifteenth lumbar. The roentgenogram showed crippling of the sacral spinous processes. The arch of the fifth lumbar was connected to the massæ laterales of the sacrum by bony bands, which look like supranumerary arches.

WERNER, A. H.: **Radium and its Therapeutic Value.** *Medical Life*, 1921, xxviii, Nos. 2 and 3.

Vibrations given off by radium were noticed before radium was known. In 1898, the Curies isolated this element. It was found that it disintegrates by its own activity. It sprays out continually. The liberating force can be measured as a power of motion and heat but the loss of weight cannot be estimated. In 2000 years, it has been estimated, the loss of a given quantity of radium has been no more than 50 per cent. Radium is an atom, not a devisable molecule. The study of radium brought the knowledge of molecule, atom and electron, and the research of transformation of elements. The scintillating particles which spray forth formerly were called alpha and beta rays. The first are electro-positive, the second electro-negative. But there is a third energy of the nature of roentgen ray present. They are the waves crested by and through the electro-negative and scintillating of the alpha and beta particle. They are real rays of light, only more penetrating, and waves of ether. The discovery of the gamma rays occurred with the discovery of pure radium salts by Villard. In looking for the bearer of the Becquerel rays, radium was discovered by the electroscopic method. It was isolated from uranium ore. It is present in the form of radium sulphate. Radium bromid is the most frequent form in which pure radium is made today.

The pure radium element was obtained as a metal from the radium salts. It has a metallic glimmer but shows signs of external disintegration. Radium gives off a low, seething gas which is called emanation. It must be looked upon as the first step in the metamorphosis of radium. In the decomposition helium is produced. The world's store of radium amounts to about one ounce. Most of it is claimed by the medical profession, and is used in irradiation and emanation-therapy. Isolated radium or radium-salt is used in

irradiation. The emanation-therapy is generally carried on by pitch-blends. No losses are incurred by using it. The real therapeutic use of radium is the one in which the radium element is used. With radium-irradiation the action of the deeply penetrating gamma-rays, which are not radium, are used. Only in certain methods beta rays and to a certain extent alpha rays have an influence here. It ought to be classed as radiation treatment and discussed in connection with roentgen rays. This would preserve the teachings of Rutherford. At first it was administered by mouth, then by inhalation. All results are of a symptomatic nature and can analogically be classified with the treatment by x-ray, of an epithelioma, which is free from metastatic involvement, "which is merely destruction of the growth by burning". Rapid growth and metastasis of cancer have not been stopped by radium.

The springs in Bohemia, around Joachimsthal, where pitch-blend was mined, had long before radium was discovered, been preferred by physicians, but investigations had failed to find the actual cause, aside from the clinically proven good effect. Therapy, later on, increased the examination of radium far beyond that in the springs. The greater radioactivity is today known to produce the better results. The effect obtained after exposure of the whole body surface to a high dose of emanation is marvelous.

Hot moist pads with radium fango will be indicated in local inflammation, neuritis, rheumatism, gout, arthritis, sciatica, chronic periostitis. These compresses retain their radioactivity and curative action. All substitutes for radium disintegrate. Mesothorium is one of the best, but only a substitute. Very dry joint affections with absence of the articular fluid, but otherwise not very acute inflammatory processes should be excluded from radium treatment. In gout with severe uric acid diathesis, radium does not bring rapid results. The examination should be practiced between the attacks. Iodid medication in arteriosclerosis and its complications is greatly improved by adding radium. In anemia, radiumnized milk is beneficial.

Emanation baths are refreshing, and have a sedative influence in insomnia. The dose should not be higher than 12,000 to 20,000 M. U. In nervous patients it is necessary to start with very low doses. The analgesic action is well known.

Radioactivity of the blood after an emanation bath has been proven, the skin being penetrated by the emanation. The author is of the opinion that the bactericidal action of the emanation in the human system is of a greater potentiality than in vitro.

STEVENSON, W. C.: **Observations on the Effects of Radium Treatment on War Injuries in the Neighborhood of Nerves and Blood-vessels.** *Dublin Journal of Medical Science*, Sept. 4, 1920, Series 7, p. 319.

Paul Touchard and Mme. Fabre treated 5 cases of syringomyelia with good success with radium, the stiffness diminishing. One patient could resume work as a draughtsman, after six months' disuse. In one, trophic disturbances disappeared. The author had good results from Radium C gamma rays. These cases were of injury of brachial plexus after humerus fracture. One hundred millieures of radium emanation, screened by 3 mm. of lead in a flat applicator was applied for two hours in the axilla, on the front and back of the shoulder-joint, for six hours in all. There was marked increase in flexor and extensor action of the joints. In other cases scar tissue was loosened and freed, and pain and tenderness were lessened. It has an anesthetic as well as an analgesic effect. It does not materially benefit gross nerve lesion, but it stimulates normal functional activity, in nerve tissue which has been injured, and is on its way to recovery. In some cases radiation appears to lessen hyperactivity in a nerve which is being irritated by scar tissue. Surface applicator of 1.5 mm. thickness of lead was used in a case of fractured lower spine. The patient is incontinent, and moves with difficulty on crutches. After radium application to the spine, feeling of cold feet and response to galvanism in the dorsiflexors and extensor hallucis were evident.

The hand and wrist of a Major were improved by two irradiations. His upper arm had been wounded. There were further good results in the partially divided median nerve in the lower forearm. Radium was used for prevention of postoperative scar. There had been pain in the scar. There was another case of a wound on the ulnar side of the forearm, diminution of tremors, and larger range of voluntary movement. Another case was of a

patient wounded through the shoulder and chest; he recovered drop wrist, and hyperextension at metacarpo-phalangeal joint. Radium was applied to the front of the shoulder, axilla and scar on back of chest. The pain in the chest was greatly alleviated, and extension and flexion were improved. Eleven cases of this type were all improved.

MCCLURE, C. W., AND REYNOLDS, L.: **Observations on the Behavior of the Normal Pyloric Sphincter in Man.** *American Journal of Roentgenology*, 1921, viii, No. 4, p. 158.

The normal quiescent sphincter is in a state of contraction. Barium mixtures can be forced from the stomach into the duodenum only by the use of considerable pressure on the abdominal wall and only when the sphincter has opened in relation to the advance of a central peristaltic wave. Then the filled antrum and first portion of the duodenum are seen to be connected by a narrow isthmus of barium, which represent the lumen of the sphincter. The *x*-ray carbohydrate meal consists of 500 c. c. (16.90 fluidounces) malted milk solution in which 90 grams (1389.91 grains) of barium sulphate are suspended by aid of potato starch. The normal sphincter opens as each antral peristaltic wave approaches, and the barium meal passes into the duodenum over a period of about ten seconds. Except in pylorospasm the opening occurs regularly when carbohydrates are injected. Protein fat and meat meals also started to pass through the pylorus immediately. The experiments seem to indicate that fatty and protein meals begin to leave the stomach within from three to ten minutes after the food has been swallowed. And the food passes through the sphincter into the duodenum as each wave approaches the pylorus. The amounts passing through the sphincter during a given period do not vary in the same person. The sphincter closes when the antral peristaltic wave has spent itself. Hydrochloric acid solutions N/40, N/20, or N/10, introduced into the first, second or third portions of the normal human duodenum, produced no effect on the opening of the pyloric sphincter. If they did cause spasm, a pathologic condition was found in the duodenal mucosa. Neutralization of the contents of the first portion of the duodenum did not prevent the closing of the pyloric sphincter.

The experiments showed that acid is not the principal factor controlling opening and closing of the pyloric sphincter in man.

SZERB, S., AND REVESZ, V.: **Papaverin in X-ray Diagnosis of Gastric Disease. Report of 250 Cases** (Das Papaverin in der Röntgen-diagnostik der Magenkrankheiten) [auf Grund von 250 Fällen]. *Fortschritte auf dem Gebiete der Röntgenstrahlen*, 1920, xxvii, H. 2, p. 108.

In roentgenologic examinations the accepted time for the barium or bismuth test-meal to pass out of the stomach is from two to three and one-half hours, but very frequently the emptying is more or less protracted. There are two types of these cases, one with flabby muscle, the stomach being atonic, the peristaltic contractions being superficial and sloughy. The emptying is not completed in three, but in from four to six, sometimes from eight to twelve hours. If you lift the caudal end of the stomach in such cases, the meal at once flows into the duodenum. This shows that the protraction in the emptying of the stomach is due to sloughing only.

In a second type of cases peristalsis is vigorous and quick, even more so than in the normal stomach. Usually the organ is dilated. The retardation in these cases is due to some organic change, for instance, cicatricial pylorus, or stenosis of the duodenum, traction from adhesions, compression, etc., or by a spastic contraction of the pylorus.

It formerly was hard to decide whether protraction of the stomach evacuation was due to organic lesions, or to pyloric spasm. But Holz knecht and Skalitser showed that differential diagnosis was greatly facilitated by the use of papaverin. The authors tried this method of diagnosis to begin with on 13 cases, and found that conditions simulating hour-glass contraction disappeared after using papaverin, and regained the normal time of evacuation of three and one-half hours, which had previously lasted nine and one-half hours.

The authors verify the observations of Holz knecht and Skalitser who find that:

(1) Papaverin will counteract the retardation of the stomach evacuation or bring it down to a normal duration.

(2) It does not change the retardation in cases of organic ste-

nosis, but increases it, thereby lengthening the time of the emptying.

(3) Retardation caused by organic stenosis and spasm conjointly will not be influenced by papaverin.

(4) There are cases where it fails, and where the retardation caused by pyloric spasm is not changed.

KLOIBER, H., AND HOCHSCHILD, H.: **Roentgenologic Demonstration of the Heart in Pericardial Effusion** (Zur Frage des roentgenologischen Sichtbarwerdens des Herzens im Perikardialerguss). *Fortschritte auf dem Gebiete der Roentgenstrahlen*, Dec., 1920, xxvii, H. 5, p. 473.

Some roentgenologic data on the demonstrability of the heart in pericarditis exudatives do not seem convincing to the author. He treats the *x*-ray differential diagnosis between effusive pericarditis and paravertebral gravitation abscess. Two shadows were seen to be situated one in front of the other. In time-exposure the plates showed one of them with boundaries not clearly defined. It was larger than the fainter one. By making *x*-rays from the front and back, and finding the denser, smaller shadow larger when the picture was taken from the back, and at last finding that it, and not both, pulsated, it was concluded that the shadow with undefined borders was the heart, in front, and independent of the second smaller shadow. The shadow lying back of it is in proximity to the posterior thoracic wall, and is a paravertebral abscess.

A spondylitis tuberculosa of the eighth and ninth vertebræ was the actual condition, which is associated with an abscess in 80 per cent of the cases.

Ansperger says that in *x*-ray diagnosis of pericardial effusion the heart's shadow is not infrequently seen inside of the shadow of the exudate. In these cases the denser heart shadow is surrounded by a lighter area. Kohler says that observers have stated the same. Many authors have written about the subject, but the author thinks most of these cases are disputable, and that, for a complete diagnosis it is necessary first to isolate the pulsating area by cutting out, while making the roentgenogram, the boundary of pulsation. They must unquestionably be localized in both the cen-

tral and the surrounding shadow. Several pictures must be made to find out if the two shadows are inseparable or not. The difference in size when the projection is made, either from the front or from the back, helps to locate the two shadows, the front one looking large in the dorsal picture and smaller in the frontal. Furthermore, if after puncturing of the pericardial sack, one of the shadows grows smaller or disappears the innermost shadow may be diagnosed as that of the heart, the outer one as that of the pericardium.

SCHAFER, H.: Nature of the Lung Radiograms (Ein Beitrag zur Kenntnis von der Entstehung der Lungenzeichnung). *Fortschritte auf dem Gebiete der Roentgenstrahlen*, 1921, xxvii, H. 6, p. 625.

So far it had not been possible to determine what tissues produced the roentgenogram of the lung which is so much used for diagnostic purposes, whether they are the shadows of the blood-vessels or those of the bronchi. Albers-Schönberg, Holzsnucht, Rieder, and Alban Koehler, consider them to be entirely made up of the branches of the blood-vessels. There are other authors, who, by experiment, arrive at the same conclusion. De la Camp and Kuepfere think that the bronchi make up the roentgenographic picture of the lung. Groedel and Köpler now seem to accept the fact that both vessels and bronchi enter into its composition. The author tried to solve this question.

His patient was suffering from a carcinoma of the esophagus, which had perforated into the trachea. She was seventy years old, had a cough and disturbance of deglutition. The swallowing was observed before the screen. After the meal had been swallowed it was seen to penetrate into the bronchi, which were filled up into the smallest bronchioles. Part was regurgitated at once by the patient and expelled by the mouth. The lung areas were light, the intercostal spaces wide, the hilus was distinctly visible, but not exaggerated. As soon as the barium was ingested the shadows showed more contrast, they became more distinct far into the lung areas. At the base of the right lung thickening of the tissue was seen a disseminated focus as in peribronchial tuberculous foci, but autopsy showed them to be lumps of barium, remnants in the smaller bronchioles. The author concludes that in cases of physiologic or

pathological thickening the branches starting from the hilus in the roentgenogram must be, almost entirely, the ramification of the bronchi. It may, of course, happen that the lung vessels are well filled with blood and then will contribute to the well-defined shadow.

MURPHY, J. B., WITHERBEE, W. D., CRAIG, S. L., HUSSEY, R. G., AND STURM, E.: **Induced Atrophy of Hypertrophied Tonsils by Roentgen Ray.** *Journal of the American Medical Association*, 1921, lxxvi, No. 4, p. 228.

In the laboratory of the Rockefeller Institute for Medical Research the susceptibility of the lymphoid tissue to roentgen ray as a therapeutic agent was put into effect on the tonsils. The stress which has recently been put on the danger of infection from these glands, led to trying their reduction and shrinkage by x-ray. The spark gap between points was 8 inches, 5 milliamperes; 10 inches distant from the target to the highest point of skin exposed. A 3 mm. aluminum filter was used. The dose was about 1 to $1\frac{3}{4}$ skin units. The ray entered under the angle of the jaw and penetrated through the soft tissues to the region of the tonsil. The exposed area was about 3 square inches, the surrounding parts being covered by heavy lead sheets.

Forty-six patients from three and one-half to forty-five years of age were treated, never however, during the inflammatory stage. In all but 4 cases there was marked improvement.

In the majority of cases marked shrinkage was found after two weeks' exposure to the roentgen ray. During the period of atrophy the crypts opened and drained. The tonsils became smooth and pale. Other lymphoid deposits, for instance, nodules on the pillars of the fauces and in masses posterior to the pillars, disappeared.

In some cases where there were in addition to the tonsillar trouble, adenoids, a dose of roentgen ray was given through the back of the neck. The results in these cases were however not uniform.

The authors do not attribute the disappearance of the hemolytic organisms in the throat directly to the action of the roentgen ray, but rather to the proper drainage of the crypts as a tonsil tissue atrophy.

SECTION ON NEUROLOGY AND PSYCHIATRY

ATTINGER, E.: **Mitral Insufficiency in Polyarthritis and Syphilis. Influence of Antisyphilitic Therapy on Heart Disease** (Mitral insuffizienz bei Polyarthritis und lues. Einfluss der antiluetischen Therapie auf die Herzaffektion). *Schweizerische medizinische Wochenschrift*, 1921, No. 14, p. 325.

The author treated a man twenty-four years old, who had been doing heavy work in a foundry, and who in 1914, had had polyarthritis rheumatica acuta, which recurred in 1918, and gave occasion for consultation. At that time there was a severe mitral insufficiency. The apical sound extended one-half inch beyond the mamillary line. Relative dulness extended one-half inch laterally across the left mamillary line, to the third rib above, and three-fourths inch to the right of the sternal edge. Absolute dulness was also increased. A marked systolic sound at the apex and over the anatomical point of projection of the mitral valve were noted. The pulmonary sound was increased, an item which led the author to accept that hypertrophy of the right heart had been existing longer. There was a pericarditic rubbing sound and pain in the region of the heart. Cyanosis of the lips, tip of the nose and ears was marked. The rest of the face was very pale. Respiration was markedly deep and frequent. The pulse was from 120 to 130, easily depressible and arrhythmical. The temperature rose to about 39.5° C. (102.3° F.).

Pericarditis soon subsided, but the rest of the heart symptoms remained the same for several months. The man had to be put to lighter work and half a year later he was at the first examination pronounced unfit for military duty. One year later when he came

to be treated for syphilitic laryngitis, he gave a positive Wassermann reaction. In 1917, he had infected himself and had been insufficiently treated. He then received nine months' neosalvarsan and two mercury treatments, 35 ointments of 3.5 grains. The Wassermann was still positive at the end of this time. The man however grew rapidly stronger. He was able to do heavy work and entered the ranks of the national athletes. The apical sound was no longer heard over an extended area, extending one-fourth inch in medial direction from the mamillary line. No systolic murmur was present. After severe effort the first heart sound was but slightly dull. The pulmonary sound was no longer exaggerated. The pulse was from 70 to 80, and the blood-pressure was normal; there was no cyanosis or dyspnea.

SICARD ET PARAF: **Intraspinal Treatment of Neurosyphilis** (A propos du Traitement Intra-rachidien de la Syphilis Nerveuse). *Revue Neurologique*, 1920, No. 10, p. 1032.

The authors have always been skeptical of the curative value of intraspinal treatment of neurosyphilis. They tried injections of soluble mercury salts. They had feared permeability of the meninges, and that from this osmotic perturbation the specific remedies injected subcutaneously would penetrate much deeper, even into the nervous parenchyma. They then thought of using an inoffensive sterilized saline solution for lumbar injections, from 4 to 10 c. c. (64.8 minims to 2.71 fluidrams), a dose sufficient to excite meningeal branlebas, and which would act on the arachno-pia-medullary permeability. Since then Marinesco, Swift, Ellis, etc., have used autogenous serum, which was gained after an intravenous injection of novarsenic or which had been added in vitro to a minimum quantity of novarsenic. Only sera showing negative Bordet-Wassermann were used, in order to put into action the seric antibodies, and it was heated to 55° or 56° C. (131° or 132.8° F.) previous to its injection. The authors again gave this therapy a trial on 14 patients, mostly tabetic or paralytic. They did not get good results, except where they used intravenous or musculocutaneous specific treatment as well. Two deaths occurred. A general paralytic, thirty-five years old, was greatly improved by 10 grams (154.32

grains) of novarsenobenzol in a series of intravenous injections; after a five-weeks therapeutic intermission, she was given autoserum, without novarsenic, intraspinally, from 10 to 12 c. c. every second day; her cephalospinal fluid had a very positive Bordet-Wassermann reaction; she tolerated the first three injections, but after the fourth she vomited, had a fever of 38.5° C. (104.32° F.) and the next day died. Autopsy revealed an extreme congestion of the pia mater, spinal cord, and mesocephalon.

In another case a woman, thirty-eight years old, with general paralysis, was greatly benefited by 9 grains (138.90 grains) of novarsenobenzol in small daily doses. An intermission of three weeks was then made and she was afterwards given intraspinal injections of autoserum without arsenic, from 10 to 12 c. c. at a dose. The first two injections given at an interval of ten days were well tolerated. The next morning, after the third, nausea, paraplegia of the inferior extremities, and sphincter retention set in. The lumbar puncture showed puriform aseptic fluid, which was proof of a non-bacterial meningeal infection. The culture remained negative. Urinary infection set in and death ensued on the fifth day.

These 2 cases show that even correctly executed intraspinal injections may be fatal.

MOORE, J. E. **The Cerebrospinal Fluid in Treated Syphilis.** *Journal of the American Medical Association*, March 19, 1921, lxxvi, No. 12, p. 769.

The cerebrospinal fluid of 642 syphilitic patients in all stages of the disease, but without demonstrable physical evidence of neurosyphilis of any type, has been examined after the administration of antisymphilitic treatment for from two to six months. Of 34 patients with primary syphilis, in whom treatment was begun before the appearance of secondary symptoms, only one (2.9 per cent) showed an abnormal fluid. After the appearance of secondary symptoms, the incidence of abnormal spinal fluid findings was about the same (from 12 to 15 per cent), no matter how long the disease had existed or by what lesions it was apparent. Only 12.7 per cent of these 642 patients showed spinal fluid abnormalities as compared to 25 per cent among untreated cases—noted by other workers.

Asymptomatic neurosyphilis is, approximately, twice as frequent in white as in colored patients. As minor signs of value in predicting the probability of neurosyphilis the following are most evident: persistently positive blood Wassermann reactions after treatment, slight pupillary changes, and certain complaints of the patient, namely, headache, nervousness, lassitude and general neuralgic pains. In general, the serologic evidence of asymptomatic neurosyphilis can be caused to disappear by prolonged, intensive, routine, antisyphilitic treatment. In the Syphilis Department of the Johns Hopkins Hospital, more than 20 per cent of all patients are clinically, or because of the serologic evidence, potentially outspoken neurosyphilitics.

R. H. BENNETT.

DAVIDSON, H. J.: **A New Procedure in the Treatment of Eclampsia.** *Surgery, Gynecology and Obstetrics*, 1921, xxxii, No. 5, p. 464.

In 11 cases of eclampsia, the author has used the introduction of from 1 to $1\frac{1}{2}$ liters (2.1135 to 3.17 pints) of water in the stomach by the tube, every four hours, as a means of promoting perspiration. No heat need be applied outwardly. No serious difficulty has been encountered in introducing the tube while the patient is unconscious. Regurgitation and aspiration need not be feared. The large amount of water introduced does not produce regurgitation. The water may be introduced rapidly and the tube removed when retching intervenes. The author could prove that the water does not remain in the stomach when more was introduced after four hours.

In these cases we have to deal with a toxic kidney block, rather than a true nephritis. The kidneys can secrete a surprising amount of urine after the block is broken. Fluids introduced into the stomach are more rapidly excreted by the kidney than when introduced into the rectum or into the tissues.

Epsom salts, from 1 to $1\frac{1}{2}$ ounces, (31.10 to 46.65 grams) should be given once or twice every 24 hours and 20 grains of potassium acetate and citrate mixture, each time the tube is passed.

Initial control of the convulsions by large doses of morphin hypodermically; spinal puncture; if the eye grounds indicate it, esserin, pituitrin, hot stupes and enemata for the flatulence and

cardiac stimulation must not be neglected. The author never resorted to initial bleeding even in extreme edema.

The treatment is much easier than hot packs, the debilitating effect on the heart is avoided, and more fluid can be introduced than in any other way. Peristalsis is stimulated.

GOETSCH, E.: **Studies on Disorders of the Thyroid. II. Further Experiences with the Epinephrin Hypersensitiveness Test, with Especial Reference to "Diffuse Adenomatosis" of the Thyroid Gland.** *Endocrinology*, 1920, iv, 389.

There is a group of borderline cases which are very difficult of diagnosis, and more difficult with reference to satisfactory treatment. The individuals belonging to this group are mostly young adults, who present a syndrome suggestive of hyperthyroidism, incipient tuberculosis, neurocirculatory asthenia and allied conditions. They fail to show positive eye signs or positive clinical findings in the thyroid gland, and they do not respond to ordinary medical and hygienic measures. They are found to give a positive reaction to the epinephrin test, but in many cases they fail to show an increased basal metabolism.

In this type of case, an extensive resection of the thyroid gland is followed by striking improvement. Microscopical examination of the thyroid in these cases shows a characteristic picture hitherto unrecognized as responsible for a definite type of hyperthyroidism. The change in the gland consists in a definite increase in the interstitial so-called adenomatous tissue, together with increased amounts of lymphoid tissue and an associated hypoplasia of the primary alveolar or acinar epithelium. This interstitial tissue is not aggregated into nodules, but is scattered diffusely through the gland. The increase in interstitial tissue arises doubtlessly from the interstitial cells, and produces a picture to which Goetsch has given the name "Diffuse Adenomatosis," and which can produce moderate states of hyperthyroidism.

That this change in the gland is responsible for hyperthyroidism, is shown by the fact that:

(1) There is an associated syndrome more or less characteristic of the hyperthyroid state.

(2) There is a failure to improve under ordinary hygienic and medical measures.

(3) There is a positive reaction to the epinephrin chlorid test.

(4) After resection of the thyroid, there is diminution or disappearance of this hypersensitiveness with considerable improvement, if not cure.

(5) There are characteristic changes found in the gland.

S. KAHN.

CURLE, G. W.: **The Relation of the Thyroid and of the Adrenals to the Electric Conductivity of Other Tissues.** *Endocrinology*, iv, No. 4, p. 523.

The electrical conductivity of liver, brain, spinal fluid, heart and lungs is increased in iodism produced by the injection of iodoform into the peritoneal cavity. In a limited number of thyroid feeding cases increased conductivity of brain and liver was an early effect. Since the thyroid is the one gland or tissue having to do with iodine metabolism, the normal activities of life in the normal individual are made possible by the amounts of iodine received from the thyroid. A single dose of adrenalin immediately increases the conductivity of the brain, and an excessive amount of adrenalin causes a decreased electric conductivity of the brain, which action is probably due to its influence upon oxidation. Adrenalin also activates the thyroid. Therefore, through the mediation of the nervous system, a reciprocal interaction is established among the thyroid, the adrenals, and the nervous system. Iodine alone, adrenalin alone, emotion, exertion, or infection alone each causes a "kinetic drive" with phenomena similar to exophthalmic goiter.

L. C. JOHNSON.

STRUMPELL, A.: **Encephalitis Lethargica** (Ueber Encephalitis Epidemica). *Deutsche medizinische Wochenschrift*, June 24, 1920, No. 26, j. 46, p. 705.

Strumpell deplores the fact that epidemic encephalitis followed so closely the epidemic of influenza. This, he says, led to con-

fusion in the clinical conception of the disease. Many cases of epidemic encephalitis were wrongly considered as influenza encephalitis. He saw 25 cases in which there could be no question that he was dealing with lethargic encephalitis as a distinct clinical entity. The following is a résumé of the most important clinical features of his cases. The disease seemed to have a predilection for individuals between fifteen and twenty-five. Several cases occurred in very young children, but these were not positive cases. The 3 oldest patients were fifty, fifty-two and fifty-nine years old respectively—all males. There were in all 7 males and 18 females.

There was no uniform symptomatology during the prodromal stage. The most common symptoms were fatigue, weakness, dizziness, pains in the head, abdomen and bones. There were no chills, nor marked catarrhal manifestations in the upper passages. Angina was met with only occasionally. Headache, such as one sees in the early stages of meningitis, was conspicuous by its absence. More common, however, was vomiting which persisted throughout the later stages of the disease.

On the second or third day, the patients became restless, sleepless, and confused; some were delirious. Others began immediately with oculomotor disturbances, which were a characteristic feature throughout the entire course of the disease. These included diplopia, paresis of the abducentes, trochlears, slight nystagmus and sluggish pupils. The most characteristic symptom was lethargy. This was of a peculiar form, it was neither sopor nor somnolence. Some of the patients seemed completely unconscious during the lethargy; there was apparently a complete inhibition of all psychic and psychomotor activity. Nevertheless, no matter how lethargic some of them were, they could easily be aroused and made to obey commands, and to perform—though clumsily and very slowly—simple acts; some of them were apparently well oriented. After considerable coaxing they could be made to take food, but when not kept awake they would fall asleep while chewing it. During the lethargy catheterization for retention of urine had to be resorted to. The lethargy would last for days and even weeks; in some it was associated with great restlessness.

Differing from the lethargy, although sometimes in certain tran-

sitional states associated with it, was the peculiar clinical picture of the catatonic or amyostatic form of encephalitis. This was practically an acute form of Wilson's disease or acute paralysis agitans. In many of the cases other dyskinesiae, such as chorea, athetosis and myoclonia especially of the abdominal muscles, shoulders and extremities, were a marked feature.

Some ocular disturbances could be found in almost every case, provided they were carefully looked for. Ophthalmoscopic examination was negative, except that in the severe cases a slight optic neuritis was sometimes in evidence. Other cranial nerve involvements were not so common. Strumpell saw true facial paralysis twice and acoustic nerve involvement (deafness, tinnitus and vertigo) once. Of greater significance were bulbar symptoms. Disturbances of swallowing and respiratory paralysis were ominous manifestations of this complication.

Sensory disturbances were not a feature of the disease. There were, however, some cases with neuritic manifestations and various paresthesias. Vasomotor symptoms, excessive perspiration, herpes and menstrual disorders in women were also met with. Pyramidal tract symptoms, which were the rule in hemorrhagic influenzal encephalitis, were never observed in lethargic encephalitis.

Strumpell believes that the disease is due to some parasitic infection. Macroscopically the lesions were not particularly distinctive, but there were evidences of inflammation of the mid-brain down to the medulla.

High fever was very rare. The severest lethargic and so-called amyostatic cases ran their course with remarkably low temperatures. There were no diagnostic changes in the blood or cerebrospinal fluid. An increased cell content in the latter was always indicative of a complicating meningitis. All these facts seem to point rather to a toxic than an inflammatory pathogenesis of the condition.

While Strumpell admits that the disease presented various clinical types and forms, nevertheless he doubts whether the cases described as spinal, polyneuritic or myelitic forms were true instances of the disease.

Many errors were made by diagnosing it hysteria and neurosyphilis.

The prognosis as a general rule was not unfavorable. Some of the severest cases recovered. How much permanent damage to the

nervous system will ultimately result he cannot state; some of his cases are, at this writing, still under observation. Five of his patients died; one of these was a case of encephalitis acutissima. In the absence of a specific diagnostic reaction, he is not very positive of the correctness of his diagnosis in that case. The remaining fatal cases were elderly individuals.

Strumpell has nothing special to offer in the way of treatment. He employed regularly quinin, from 0.1 to 0.3 gram (1.543 to 4.63 grains) t. i. d. and urotropin. For the restlessness he gave narcotics preferring chloral and luminal. Therapy had no influence on the severely lethargic cases; from 10 to 15 c. c. spinal fluid withdrawn by lumbar puncture often relieved some of the symptoms, but only temporarily.

M. KESCHNER.

BOVERI, P.: **The Cerebrospinal Fluid in Epidemic Encephalitis** (*Le Liquide Céphalo-Rachidien dans l'Encephalite Epidemique*). *Bulletins et Memoires de la Societe Medicale des Hopitaux de Paris*, July 8, 1920, xxxvi, No. 24, pp. 960-2.

The cerebrospinal fluid in epidemic encephalitis cannot be considered absolutely normal. The changes noted, however, are never very marked, as far as the cytology, the presence of albuminoids, and the occurrence of reducing substances are concerned. In all the phases of the disease, the same very slight changes in the fluid are noted. The various clinical types of the disease do not present any characteristic findings on lumbar puncture.

The very slight changes in the fluid and the uniformity of these changes in all the phases of the disease are of great differential diagnostic importance, since they serve to distinguish epidemic encephalitis from tuberculous and syphilitic meningitis.

The changes in the fluid in cases of epidemic encephalitis are:

(1) *Tension*.—In 8 out of 16 cases, Boveri noted a slight hypertension of the cerebrospinal fluid. In the other 8 cases, the tension was normal.

(2) *Color*.—The liquid is always clear.

(3) *Albumin*.—The albumin content was normal or only very slightly increased.

(4) *Reducing Substances*.—There is usually a slight increase in the reducing properties of the cerebrospinal fluid in epidemic encephalitis, but the change is not constant, and not marked.

(5) *Cytology*. A lymphocytosis may be present, but it is always very slight.

S. KAHN.

FITZ, R.: *The Relation of Hyperthyroidism to Diabetes Mellitus*. *Archives of Internal Medicine*, March, 1921, xxvii, No. 3, p. 305.

Fitz's paper reviews the literature on the subject and reports a number of cases from the records of the Massachusetts General Hospital and the Mayo Clinic, illustrating the association of these two conditions. Thirty-nine such cases were found. Fitz states that there is no established evidence that such coincidence is more than chance.

The diabetes usually follows thyroid disturbance, but may precede it, and tends to parallel in severity the severity of the thyroid intoxication. The patients with nontoxic goiter who were operated on in this series showed no improvement in the diabetes. It is, therefore, evident that partial thyroidectomy alone has no curative effect on diabetes. On the other hand, certain patients with toxic thyroid disease and diabetes improved to a considerable degree after the thyroid symptoms were checked. The author believes this to be brought about because of a change in the rate of metabolism, rather than because a portion of the thyroid gland had been made functionless. He concludes that before this supposition can be established more accurate information must be obtained with regard to the effect of an increased rate of total metabolism from thyroid intoxication on the carbohydrate metabolism of diabetes.

T. HOWARD.

BRUNI, H.: *Sexual Neurasthenia* (Neurasthenia Sessuale). *La Rivista Medica*, 1921, xxxvii, No. 14, p. 313.

Few diseases have as great an influence on the state of mind of the patient, as those of the urinary tract and especially that of chronic

urethritis, which, as Guyton says, is based on a neuropathic disposition. Most of these patients are preoccupied, restless, impressionable, and depressed, while others are excitable. They spend their days in pondering on their conditions. Charcot has called the severe cases "urethral delirians". They become more and more discouraged, and doubting medical help, try suicide.

This sexual neurasthenia may have started from a pathological condition at the posterior part of the urethra. In these cases the urologist must intervene. Such cases are known to have been diagnosed in 43 different ways. Their main symptoms are prostatorrhea, spermatorrhea, nightly pollutions, and impotence. Phosphaturia and oxaluria often complicate the case. Neuroses of sensibility in the genito-urinary tract and vesical and testicular neuralgia may be prevalent, with frequent desire to micturate. The pain located in the perineum or in the scrotum radiates toward the thighs, hypogastrium, or the arms, where it may amount to anal tenesmus. They complain of vague pain along the urethra, especially in the fossa navicularis. Sexual desire is usually diminished. Erections are incomplete and ejaculations precipitate. Nightly pollutions are frequent, which state leads to psychic impotence. There is a thready and mucous discharge of a turpid liquid, which is sometimes mistaken for sperma, but is only a catarrhal product of the prostate. Often there is real spermatorrhea, occurring with defecation, and greatly enfeebling the patient. In chronic prostatitis, there is an admixture of pus. The urine passed in the morning is light; that passed during the rest of the day is turpid. The sediment consists of phosphates and calcium carbonate. Phosphaturia is only pathologic, if it is excessive and permanent. It may be mistaken for bacteruria, but in that case it will be constant, alike in every strata, and have an objectionable odor. Oxaluria which is much more rare in neurasthenia, is a sign of weakness of combustion.

The nervous signs are depression, lassitude, hemicrania, neuralgia in the kidneys, ureters, and bladder, muscular asthenia, gastro-intestinal and vasomotor disturbances. Fine white or colored oxalic crystals may be discernable under the microscope. Renal backache is associated with this condition, as is sometimes hematuria.

In diagnosing sexual neurasthenia it is often difficult to establish the cause. The urine is clear, bladder and prostate normal, urinalysis negative, but there is usually a spasmodic resistance in the

membranous region, with rather vivid pain. Frequently, the patient has had urethritis or a prostatitis which has been overlooked. In some rare cases papilloma of the posterior part of the urethra or polypi, or chronic inflammation at the caput gallinae, the organ which contains an abundance of nerves, is noted.

In these conditions it is necessary to practice urethroscopy.

Azoöspemia, asthenospermia and aspermia are usually due to inflammatory conditions in the seminal passages, and they must be treated.

The neuropathist must give moral aid and encouragement and advise uroscopic treatment. Tonics such as strychnia, hola, glycerophosphate, and arsenic are indicated in cases of excitability. Bromids, change of air, electrotherapy and hydrotherapy should be advised. *Benique's sound every second or third day from 5 to 30 minutes and Winternitz's urethral cooler may be of benefit. All urethral lesions must be radically cured. Mineral waters may lessen acidity of the stomach contents and may diminish phosphaturia. Tea bromids or urotropin may be used as purgatives. Meat, albumin and fat, but no diet rich in mucoids may be given.

MORLEY, W. H.: **The Interstitial Gland—What It Is and Its Supposed Function.** *New York Medical Journal*, March 2, 1921, exiii, No. 9, p. 393.

The term interstitial gland was given to a special group of cells found in the ovary of animals by M. Bouin, about 1900. Later this name was applied to similar cells or groups of cells in testes. As to the origin of these cells, Rasmussen was able to observe (in the woodchuck) that they did not present the same appearance at all times. Changes are exerted in the cells during rutting (in animals), or during hibernation; also by x-ray, ovarian transplantation and extirpation. Falta states that an interstitial gland, in women, is a cell complex that develops from the theca interna of atretic follicles. An atretic follicle is a graafian follicle that has not reached full development, that never has contained an ovum, and hence does not ripen and discharge its ovum. In the testes, the interstitial cells are found in the interstitial tissue between its seminiferous tubules, and are arranged in irregular groups. The latter are referred to as

Leydig's cells. These cells are part of the internal secretory mechanism of the ovary, and the chief source of the internal secretion of the testes. The author disagrees with the tenets of Serge Voronoff's book LIFE. The advantage of transplantation of gland tissue either auto, homo, or hetero—referring especially to the transplantation of the gonads over the ordinary methods of organic therapy—is a matter of grave doubt. The transplanted tissue soon atrophies and the beneficial results, if any, are ephemeral and so slight that they are not worth the risk and trouble of an operation.

J. ROSL.

MARIE, A., AND LEVADITTI, C.: **General Paralysis and Its Causes** (De la Paralysis generale et de ses causes). *Annals d'Hygiene publique et de medicine legale*, 1920, 4, s. T., xxxiii, p. 215.

In 1820 Bayle described general paralysis as the last stage of various types of mental insanity. Later Baillarger gave a more precise description of the disease.

At the Congress at Lyon in 1892, Regis pronounced it of syphilitic origin. Arnands described the general paralysis of congenital feeble-mindedness. Then infantile and juvenile paralysis was discovered. It was shown that there must be cerebral lesions before general paralysis can be established. Later it was admitted that true neuroses existed without general paralysis. After the recognition of paralysis as syphilitic one was ready to admit a neurophilis præcox. After twenty years the debate between general paralysis and neuropsychosis stopped, and it was found that neuropsychic symptoms were common forerunners of general paralysis. Biology established the fact of a cortico-medullary irritation in neuropathic conditions, and science arrived at the cerebral reactions of syphilis. Neurotropism was found in all syphilitics. Of 100 syphilitic cases, however, 3.5 per cent eventuate in general paralysis. Only a small number give cerebropathic signs during the roseola stage, and are later found among the paralytic. It seems that the degree of paralysis is inverse to the cutaneous manifestations. These cases are most frequently seen in the modern centers and more and more during the last years. Swiedor did not mention general paralysis, may be because it did not then exist. On the other hand cutan-

eous symptoms are less conspicuous now-a-days. In paralytics the primary stage of syphilis is very light and almost ephemeral, or hardly present at all; tertiary cutaneous and visceral lesions are rare. Fournier followed up 83 cases from chancre to the paralytic stage. They rarely had had, or very transiently, roseola and mucous plaques, or alopecia; only 8 showed secondary symptoms. Two paralytics had had nothing but chancre. On the other hand 243 cases of syphilis, primarily grave, the symptoms lasting many years, did not go on to paralysis or tabes. Fournier, in consequence, arrives at the conclusion that general paralysis is a sequel of benign syphilis. It is of course true that these benign cases may have been insufficiently treated in their initial stage, but Marie and Plant contradict this opinion, because there are cases on record which have also had repeated and adequate treatment during the course of the disease. In the tropics skin lesions are very grave, paralysis very rare. The same is true in certain isolated mountain districts. The authors consider this a proof of a certain virus being active in certain localities or races. They think that the reports of syphilis having occurred in Europe much later than in many other countries must have been due to a slow adaptation and development of a variety of *treponema* with a nerve affinity. The African negro, now showing grave skin lesions, is at the stage that Europe was in a long time ago, before the neuro type had developed. It has been found that in conjugal and familial syphilis the same type of syphilis is apt to occur in all those infected. It is a certain *treponema* which causes general paralysis. The statistics of Marie and Beaussard show that generally the offspring of general paralytics have mental debility, imbecility, melancholia, idiocy, epilepsy; one case only was heredosyphilitic. Others showed defects not clearly of syphilitic origin. At the Twelfth Psychiatric Congress, at London, Marie showed that tabes and general paralysis were found in patients infected from the same source, and by the same virus with nerve affinity. Nonne, Brosius, Babinski and others have had the same experience.

The syphilitic virus was found in the gray brain matter. The authors have found by experiment that in general paralytics spirochetæ circulate in the blood and that the virus can be introduced by injections into the scrotum and testicles. It was found in the cerebral cortex, blood and spinal fluid. In experiments general paralysis was transmitted from cultures from a paralytic to animals.

INTERNATIONAL MEDICAL DIGEST

Vol. II

JULY, 1921

No. 7

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	578
Section on General Medicine - - - - -	579-612
Section on Laboratory and Research - - - - -	613-630
Section on Pediatrics - - - - -	631-646
Section on Roentgenology and Electrotherapeutics - - - - -	647-658
Section on Neurology and Psychiatry - - - - -	659-672
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-xx
Index of Subjects - - - - -	xxi-lviii

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1921, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHESKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

JULY, 1921

No. 7

SECTION ON GENERAL MEDICINE

McINTYRE, H. D., NORTH, E. A., AND McINTYRE, A. P.: **Comparative Values of Complement-fixation Methods in Syphilis.** *The Journal of Laboratory and Clinical Medicine*, February, 1921, vi, No. 5, p. 233.

The authors studied the complement-fixation test, using the ice-box Wassermann reaction, the Hecht-Gradwohl test, and the water-bath Wassermann reaction. The following results were obtained:

1. Cholesterolized antigen properly prepared and titrated yields from 10 per cent to 15 per cent more positive Wassermann reactions on luetic sera than does the plain antigen. They consider it a safe antigen to employ in the Wassermann reaction with complement-fixation in the ice-box at 2° C. (35.6° F.) for a period not longer than ten hours observing the precautions outlined in this paper. They have obtained but one positive reaction employing such methods in which the clinical findings, the history, or both did not justify a diagnosis of lues.

2. The Hecht-Gradwohl test, when positive in the temperate zone, is diagnostic of lues. It will yield 15 per cent more positive reactions on luetic sera than does the classical Wassermann reaction. It may be employed in from 95 per cent to 98 per cent of fresh sera (not over forty-eight hours old). It does not yield false positive reactions in tuberculosis.

The Wassermann test employing complement-fixation in the ice-box at 2° C. (35.6° F.) will yield a much higher percentage of posi-

tive reactions than does the Hecht-Gradwohl test employing complement-fixation in the water-bath. With complement-fixation under the same conditions, however, the tests practically agree.

The three serologic reactions appear in the serum and disappear under treatment in the following order:

The ice-box Wassermann reaction is the first to appear positive, the Hecht-Gradwohl test follows, the water-bath Wassermann reaction appearing last. Under treatment the water-bath Wassermann reaction appears first, the Hecht-Gradwohl reaction next, the ice-box Wassermann reaction last.

C. M. ANDERSON.

KRAUSS, W.: **The Whys and Wherefores of Unreliable Wassermann Reports.** *Southern Medical Journal*, 1921, xiv, No. 3, p. 186.

The physician has his share in the responsibility of an accurate laboratory report. "A frankly positive reaction in competent hands practically never means anything but syphilis." The difficulty is in finding the value of a negative or partially positive Wassermann test, or a positive Hecht or Noguchi or cholesterol, where the Wassermann is negative.

For the Wassermann reaction itself guinea pig's blood (complement), an organ extract, known as antigen, the patient's serum, amboceptor, or hemolysin, capable in the presence of complement, of dissolving indicator blood cells, and a suspension are necessary. In the first incubation the reaction proper takes place, the syphilitic immune body is bound to complement by antigen. Then the indicator reaction is inaugurated. Sheep cell antigen with antisheep amboceptor detects whether complement has been used. If the second gives no hemolysis the first one must have been positive. False positives may arise from being bound to non-specific substances. False negatives may arise from lack of flexibility. Other mistakes arise from serum being anticomplementary or deficient in complement, and because the strength or reaction of blood and spinal fluid cannot be contracted, the latter have no complement. The guinea pigs are tested before admitting them to the Wassermann herd. Blood 5 c. c. (1.35 fluidrams) from a 100 gram (3 oz.) pig is taken from the heart by sterile suction in the morning before feeding. Pooled

serum from 4 or 5 pigs is salted and stored in a tube, surrounded by ice, inside a thermos bottle. For an antigen v. Wassermann used aqueous extract of syphilitic liver, carrying controls to measure the anticomplementary property of the emulsion in use. He allowed two hemolytic units. Any serum and antigen mixture not binding more than one unit of complement fell into the negative column. It required two whole units to make a 4-plus reaction. Wassermann's margin of safety has been ignored by many modifiers. By many experiments it was shown that the hypothetical immune body of syphilis was simply a physiochemical state of the serum (colloid instability), and that the margins of syphilitic and non-syphilitic overlapped.

Cholesterol in excess makes all body sera "positive". For a long time acetone insoluble lipoids were relied upon for control. It became the custom to continue the treatment until a cholesterol negative was achieved. It was used in some of the best clinics and in the Army Medical Corps. But it was soon found that under prolonged treatment sera may become cholesterol-fixed. The optimum time temperature dilution equation is different for each type of antigen. The patient's serum may be hemolytic. Then positive reactions are lost, if anticomplementary pseudo-positives are determined. Contaminated and deteriorated sera cannot give reliable reaction. Needle and receiving vessel must be chemically clean; if soap or acids have been used, repeated soaking, washing and sterilization are necessary; the utensils must be dried and cooled. Hot and wet utensils hemolyze the blood. Pokeberry juice colored blood is unfit for test material; cotton and gauze are anticomplementary. The physician must not send in chylous blood, taken after a full meal; anesthesia blood, taken after ether; alcohol blood; cholesterol blood, as in jaundice or cholemia; fever blood, obtained during pyrexia. Cross-fixation may occur in yaws. This reacts like syphilis, in tubercular leprosy, in certain tropical hemoprotezoan infections, during active tuberculosis, in cancer with much autolysis, especially with cholesterolized antigen. "Excluding yaws and possibly leprosy, a 4-plus reaction with both purified antigens on inactivated antigens on inactivated serum with anti-sheep serum means only syphilis and nothing else except technical error."

The author states that the classical Wassermann test is the only one to be trusted. He proposes three readings: Positive, 4-plus, with

both antigens; intermediate, between 1- and 4-plus, with either antigen or negative.

LINTZ, J.: **Elephantiasis with Reference to Syphilis.** *New York Medical Journal*, April 6, 1921, cxiii, No. 11, p. 517.

Elephantiasis has been defined as a "progressive histopathological state or condition which is characterized by a chronic inflammatory fibromatosis or hypertrophy of the hypodermal and dermal connective tissue which is preceded by and associated with lymphatic and venous stasis, and may be caused by any obstruction or mechanical interference with the return flow of the lymphatic and venous currents in the affected parts". It is considered as nonfilarial and filarial.

The nonfilarial type is caused by mechanical obstruction, such as carcinomatous or tuberculous masses, or following operative interference with lymphatic drainage after extirpation of axillary nodes for mammary carcinoma. Some (Matas, Prout) say that mechanical obstruction alone is not sufficient to induce elephantiasis; that with the obstruction infection must be superimposed, a general streptococcus reticular lymphangitis; that elephantiasis is a subacute or chronic recurring erysipelas generally with fever at first which becomes less in subsequent attacks, and the condition is called elephantiasis streptogenes. When no evidence of a direct, mechanical agency can be shown, and when no direct source of infection can be found in the affected part, the elephantiasis is called filarial in origin, generally without any other basis save that of exclusion.

In many of the tropical and subtropical regions, from 25 to 35 per cent of the inhabitants show in their peripheral circulation, especially at night, tiny parasitic embryo organisms, the *Microfilaria Bancrofti*. These microfilaria, which circulate but do not multiply, are the immature offspring of the adult filaria located in the lymph-nodes or lymphatic tracts. An individual may be heavily infected with microfilaria and yet be in perfect health. Manson says that blockage in these cases is due to aborted ova of filaria. In these ova the microfilaria are folded back and forth within a membrane so that the shortest diameter might easily block the lymphatics. When a sufficient number are thus blocked, the lymph is passed along

through anastomatic channels until finally all of these are blocked. Then, with lymphatic stasis and varicosity, rupture of lymphatics readily takes place into the bladder, peritoneum, or tunica vaginalis. These patients will show chylous ascites, chyluria and chylocele.

Objections have been made to Lintz's filarial explanation of elephantiasis, as follows:

1. The fact that filarial infection is a lymphatic disease, and that elephantiasis is a lymphatic disease, does not indicate that elephantiasis is necessarily filarial.
2. In some countries elephantiasis is fairly common, though microfilaria are not found.
3. The fact that elephantiasis of a leg may follow an operation for lymph-scrotum, which is admittedly a filarial manifestation, does not imply that elephantiasis is directly caused by filaria, nor does the fact that elephantiasis and lymph-scrotum are occasionally associated.

Long before the discovery of the filarial organism, syphilis was considered by Webb in some cases the cause of elephantiasis of the penis and scrotum. In 1880, Klotz presented a case of elephantiasis of the foot and leg of seven years' standing in a woman aged fifty-eight, with deep ulcers which were very suggestive of syphilis, and which improved with the internal use of corrosive sublimate. Numerous other similar cases have been reported.

The author then describes 3 of his own cases and comes to the following conclusions:

1. Direct evidence of the filarial origin of elephantiasis has never been fully demonstrated.
2. Three cases are presented of unilateral enlargement of a limb due to syphilis. One case quite definitely and two cases very suggestively resemble elephantiasis, the pathological lesion of which is probably an endolymphangitis. The two cases treated responded to the therapeutic test, though not yet completely cured.
3. It is suggested that all cases of elephantiasis be exhaustively examined for evidence of syphilis, and intensive antisiphilitic treatment tried.

J. ROSE.

OWEN, L. J.: **Syphilis as an Etiologic Factor in Nodular Cirrhosis of the Liver.** *The American Journal of Syphilis*, January, 1921, v, No. 1, p. 20.

The basis of this report is a review of 1200 autopsies performed in the Pathologic Laboratory of the Washington University. It was found that 8.5 per cent of all adults had cirrhosis of the liver and of these 80 per cent were of the nodular type. There were 3 instances of typical syphilitic cirrhosis characterized by deforming bands of scar tissue; 1 case of obstructive cirrhosis with suppurative cholangitis caused by calculi lodged in the common duct; and 1 instance of primary carcinoma of the liver with cirrhosis.

A brief summary of 19 cases is given. A study of these reveals a high incidence of syphilis, excessive use of alcohol, and a combination of the two. Forty-two per cent of the cases gave a positive Wassermann reaction. In 2 cases while the Wassermann was negative lues could be diagnosed by clinical evidence thus bringing the syphilis incidence up to 58 per cent. If the cases in which no Wassermann test was made are included the percentage of syphilis still reached 37 per cent.

The author's conclusions are: the frequent association of syphilis with nodular (Laennec's) cirrhosis of the liver (present in 40 per cent of 19 instances of nodular cirrhosis) indicates that it is an etiologic factor in the production of the hepatic lesion. The occurrence of alcoholism in association with syphilis indicates that a combination of the two factors may produce the lesion. Other chronic infectious processes, such as chronic arthritis and endocarditis have been associated with cirrhosis with sufficient frequency to warrant the collection of further data concerning their relation to cirrhosis.

M. BANOWITCH.

WALSON, C. M.: **Silver Salvarsan in the Treatment of Syphilis.** *American Journal of the Medical Sciences*, March, 1921, clxi, Part 3, No. 588, p. 418.

Silver salvarsan contains 22.4 per cent arsenic and 14.1 per cent silver. It is a grayish-black powder and an ichthyol brown color in

solution. It is the strongest spirocheticide and least toxic of all arsenobenzol preparations according to animal experiments and so far in clinical applications. It deteriorates rapidly when exposed to air and is best recognized when put into solution, when it takes on an opalescence of pronounced cloudiness or floats on the surface in black particles. It is administered in the proportion of 0.1 gram (1.543 grains) to 10 c. c. (2.71 fluidrams of freshly distilled sterilized water. It must be thoroughly dissolved and given slowly. Interval of dosage is four days. Increase the dose to 0.2 gram (3.086 grains) for women and 0.25 gram (3.8575 grains) for men as a maximum, never giving more than 2 gram (3.086 grains) in one month.

The results obtained in primary and secondary syphilis on the Wassermann reaction are as good, if not better than with arsenobenzol preparations, used with mercury. Mercury is given along with the silver salvarsan. No alarming effects have been seen in the author's series of cases.

A. T. MAYS.

ROYSTER, L. T.: **A Statistical Report on the Incidence of Congenital Syphilis.** *American Journal of Syphilis*, January, 1921, v. No. 1, p. 131.

The author presents 1000 cases (659 colored, 341 white) upon whom a Wassermann was taken. There were 101 positives or 15.47 per cent in the colored group and 24 positives or 7.04 per cent in the white group.

M. BANOWITCH.

FORDYCE, J. A.: **The Importance of Recognizing and Treating Neurosyphilis in the Early Period of the Infection.** *American Journal of the Medical Sciences*, March, 1921, clxi, Part 3, No. 588, p. 313

Syphilis attacks the nerve system during the first year of infection, therefore the importance of a thorough general physical examination, including the eye-grounds, blood and spinal fluid. Early neurosyphilis may manifest itself by obtrusive symptoms, by slight objective signs or it may be symptomatic. Intravenous treatment and mercury and potassium iodid may control the obtrusive symp-

toms but seldom cures the underlying infection and if not cured these early infections may persist and cause late neurosyphilis. No case should ever be pronounced cured without the knowledge gained by spinal fluid examination. In case no evidence of infection is found, a prognosis of probable future immunity may be made. Intraspinal therapy has been used by the author for seven years and practically all early cases can be cured more rapidly, and in the majority of cases only cured by the combined intravenous and intraspinal method.

A. T. MAYS.

KATZ, L. N.: Factors Modifying the Duration of Ventricular Systole.

Journal of Laboratory and Clinical Medicine, March, 1921, vi, No. 6, p. 291.

Although emphasis has been laid on the fact that the circulating minute volume and the systolic and diastolic blood-pressure are dependent on the systolic discharge and the rate of the heart, it has not always been appreciated that these must also be considerably affected by the duration of the systolic discharge as related to the diastolic time allowed for refilling. The question at once arises as to how much the duration of systole can vary and what factors operate to cause these variations.

The heart cycle is divided into systole, or that period during which the ventricular muscle is mechanically shortening or increasing its tension, and diastole, or that portion of the cardiac cycle between the end of one systole and the beginning of the next. Systole can be further subdivided into an isometric and an ejection period. The isometric period, which begins with the contraction of the ventricle, is so termed because the heart contracts without any change in length. During this period the ventricle is entirely shut off from the other chambers except for a brief interval at the onset. No blood is, therefore, expelled from it until the semilunar valves open. The opening of these valves marks the beginning of the ejection phase, during which the ventricle contracts tonically and ejects the blood in it into the aorta (or pulmonary conus) with which it then communicates.

Diastole can also be subdivided into a period of rapid diastole,

a period of diastasis and a period of auricular activity. The period of rapid diastole begins with the relaxation of the ventricle and lasts a variable time. The ventricle, during the early part of this phase, except for an extremely short interval at the onset, is a closed chamber and no blood enters. Later, however, when the auriculo-ventricular valves open, the ventricle fills with blood from the auricle. The filling of the ventricle continues during the next phase also but at a much slower rate. This period is termed the period of diastasis, as in it the ventricular muscle has reached a stage of rest. Toward the end of this period another impulse, arising in the sinus node, sets up an auricular contraction, fractionate in character, which constitutes the period of auricular activity. There is still some dispute as to what rôle the auricular activity plays in the filling of the ventricle.

The author came to the following conclusions:

The temporal variations of the cardiac phases in dogs with normal circulations were determined from optical records of the heart sounds. It was found that under natural conditions diastole is more variable than systole. The duration of diastole depends mainly, but not entirely, upon vagus tonus. The variations of systole bear no constant relation to the preceding diastole, being even less affected than diastole by the vagus tonus.

It was found that while the heart is changing from one rate to another due to varying nervous control, the duration of diastole alters first, except occasionally, during the beginning of epinephrin or accelerator stimulation. The cardiac periods do not follow the Uniformity of Behavior law during such changes in rate. This deviation is especially marked in the recovery from accelerator stimulation during which systole is abbreviated for a long time due to persisting selective action of these nerves.

During the rapid intravenous injection of saline, which increases the venous pressure, systole is prolonged independent of the cycle length.

The ultimate effect of mechanical influences, such as marked changes in venous pressure or arterial resistance, is the production of variations of systole independent of heart rate.

It appears from the results presented that the vagi modify the duration of the systole mainly insofar as the heart rate produced effects the diastolic volume of the ventricle. The accelerator nerves.

however, through a selective effect on the inherent irritability and contractility of the ventricle, exert a specific influence on the duration of systole.

Epinephrin, through its acceleration stimulation, produces so marked a selective action on the systolic duration that the contrary effect of the high arterial resistance is overbalanced.

It is concluded that the duration of systole is normally modified to a large extent by the heart rate according to a uniform cardiac action conception, such as Henderson presented; other influences, however, for instance alteration of arterial resistance and venous pressure, the specific action of the accelerator nerves and those occurring during changing heart rate and even naturally from beat to beat, are capable of producing deviations from this uniform action in an animal with a normal circulation.

C. M. ANDERSON.

KAHN, M.: **Angina Pectoris of Diabetes.** *Journal of the American Medical Association*, February 26, 1921 lxxvi, No. 9, p. 570.

Of the ills to which the diabetic is heir, not the least annoying are the attacks of angina pectoris. Among diabetics, a man of middle age, or a woman nearing her menopause or during her climacteric, will frequently complain of the distressing pain in the heart.

Patients with uncomplicated diabetes have a normal or subnormal blood-pressure, whereas those patients who also show pathological condition of the kidneys have the high blood-pressure common in that condition. In the middle-aged diabetic with normal or low blood-pressure, the physician frequently finds one whose complaint is attacks of angina pectoris.

These anginal attacks do not seem to occur when the patient's glucose tolerance is not exceeded. A high blood sugar with glycosuria will frequently cause the recurrence of the attacks.

It appears that the carbohydrate storage in parts of the heart has something to do with the cardiac conductivity. It has been found that the fibers of the bundle of His are markedly richer in glycogen granules than the ordinary cardiac muscle fibers. It is logical to assume that in diabetes there is a lowering of the glycogen storage with a resultant disturbance in the nourishment of the cardiac

musculature, terminating in myocardial pathologic changes. Cardiographically, a number of the diabetic patients suffering from this condition will show an inversion of the T wave in one or more of the three leads.

R. H. BENNETT.

DU BRAY, E. S.: **Saccular Aneurysm of the Descending Thoracic Aorta.** *American Journal of the Medical Sciences*, March, 1921, clxi, Part 3, No. 588, p. 407.

In a report of a patient, fifty years old, who suffered with increasing sharp pains in the left lower chest, especially on deep breathing and coughing, it is stated that the patient was relieved by lying on the left side. The sputum was mucous and stringy, never blood-tinged. There was loss of weight but no night sweats. Impaired percussion at left axilla, extending forward to cardiac dullness, and posteriorly to left base were present; tactile fremitus absent; breath sounds harsh and loud beneath left clavicle with heart displaced markedly to right. The patient was in a hospital twenty-four hours when he died suddenly in orthopnea bringing up small amounts of blood. The case was diagnosed as tuberculous pleurisy with effusion. Autopsy showed aneurysm ruptured into left lower lobe and left chest cavity. These are the least common sites of all aortic aneurysms, occurring only a little more than half as frequently as abdominal aneurysms. Wassermann on blood postmortem was triple plus.

A. T. MAYES.

IGLAUER, S.: **The Report of a Case of Laryngocoele.** *New York Medical Journal*, March 16, 1921, cxiii, No. 10, p. 464.

The occurrence in man of pathological air pouches connected with the larynx constitutes a reversion to a primitive type. These air sacs are the analogues of similar structures normally found in some of the anthropoid apes, chimpanzee and gorilla. It takes its origin from the Ventricle of Morgagni and represents a distention or enlargement of the appendix of the ventricle. The sac is lined with mucous membrane continuous with that of the larynx. It makes its

way through a small opening or dehiscence in the lateral portion of the thyrohyoid membrane and appears as an intermittent swelling in the side of the neck. Although present at birth, they may not become manifest until later, as a result of single violent or frequent expiratory effort (crying, coughing, straining or blowing a wind instrument). Operative interference is necessary in case of enlargement of the sac or infection. Bilateral cases have been reported.

Case Report.—Male, five and a half years of age. At nine months, mother noticed that whenever he cried and threw head back a small lump, like a soft rubber ball, appeared alongside the larynx on right side. At first it was the size of hazelnut, but in few weeks it grew larger and at three and a half years was the size of hen's egg. It was scarcely visible when the child was quiet. In February, 1920, when the patient made a forced expiratory effort as in crying or blowing, a tumor immediately appeared in the right anterior cervical triangle and extended vertically from the cricoid cartilage almost to the clavicle. Laterally it disappeared under the anterior border of the sternocleidomastoid muscle. The swelling had a smooth rounded contour, was soft, elastic and slightly tympanitic to percussion. It disappeared when the patient was in repose. During repose a profile x-ray showed a normal neck picture, but during forced expiration the hyoid bone was pushed forward from the vertebral column for about one half inch, and a roughly triangular air space, with its apex upward, appeared between the inner wall of the larynx and the posterior wall of the oropharynx and hypopharynx, at the same time giving a slightly convex twist of the trachea. The patient was free from pain, dysphagia, aphonia or dyspnea. No treatment was deemed necessary in this case.

J. ROSE.

WEBB, G. B., AND GILBERT, G. B.: **Bronchiectasis and Bronchitis Associated with Accessory Sinus Disease.** *Journal of the American Medical Association*, March 12, 1921, lxxvi, No. 11, p. 714.

Since 1918 the authors have made roentgen-ray examinations of the accessory sinuses in all cases of chest disease, when the sputum proved repeatedly negative to the tubercle bacillus. Few cases of bronchiectasis or of chronic bronchitis have been found in which

chronic infection of the accessory sinuses was not demonstrated. Bilateral empyema of the antrums is most frequently encountered. The findings have invariably proved correct by the opening and washing of pus from these sinuses. The pus usually contains pneumococci. There is always improvement of the cough after this treatment.

The authors have been especially impressed by finding that the history in many cases was negative to nasal disease.

R. H. BENNETT.

GWERDER, J.: **Artificial Pneumothorax** (Beitrag zum Entspannungs pneumothorax). *Schweizerische medizinische Wochenschrift*, 1921, li, No. 15, p. 351.

The indications for artificial pneumothorax generally accepted are those of Fraenkel's.

In the cirrhus processes of unilateral chronic infiltration, caverns are no contraindication. It may be tried in one-sided pneumonic conditions which have a slow course,—for instance, Gwerder's graded pneumothorax, even in very active pneumonic foci. It may be risked where there is unilateral cirrhotic and one-sided chronic infiltration, and where there are on the other side but minor pathological processes of proven inactive character. In some cases of bilateral tuberculosis an incomplete pneumothorax may be justified as a symptomatic pneumothorax. The author has in some cases been lucky even where he made an artificial pneumothorax over caverns and foci, where they happened to be favorably located, and where impediment of the healthy tissue could be avoided.

FOSTER, N. B.: **Notes on the Diagnosis of Bronchopneumonia and Its Complications.** *American Journal of the Medical Sciences*, Jan., 1921, clxl, Part 1, No. 586, p. 1.

After many examinations, the author concludes that bronchopneumonia is a condition frequently overlooked. The physical signs are often transitory, changing definitely from morning to afternoon, and again, the patient may not seem sick enough for a careful ex-

amination. The multiple discrete foci do not always give typical signs. There is something more than râles to be heard. The variability in intensity of the breath sounds, increased respiratory rate, and persistent temperature are important. The radiogram is often misleading and may be mistaken for miliary tuberculosis. Transmission of whispered voice sounds with abnormal clearness and slight nasal quality is an early definite sign. The writer has had more cases of complications in lobular pneumonia than in the lobar type. The complications likely to be overlooked were empyema, pulmonary abscess, and otitis media. The most common sequellæ are myocarditis.

A. T. MAYS.

IRONS, E. E.: **Pneumonia Following Influenza in the Camps in the United States.** *Military Surgeon*, March, 1921, xlviii, p. 275.

This article deals with pneumonias following influenza during the period from Sept. 1st to December 31st, 1918. The clinical symptoms are said to have been the same throughout the camps in the United States, although there appear to have been some local differences in the virulence of the infection.

Four types of infection were recognized:

1. Pneumococcal pneumonia.
2. Staphylococcus pneumonia.
3. Streptococcus pneumonia.
4. Pneumonia produced by bacillus of Pfeiffer.

When the pneumococcus occurs in pure culture, and where it is the predominating organism, accompanied by influenza bacillus and other organisms, a characteristic form of pneumonia is produced. There is in most cases very little fluid found in the pleural cavity, and the surface, instead of being covered with a shaggy exudate of fibrin, is only slightly dulled. There are brick-red paint-like patches here and there, and sometimes small, elevated, grayish-yellow flecks which become fluent in patches. The pleura and interlobular septa and the remaining framework of the lung appear to be unchanged. The bronchi are not especially conspicuous. Their walls are not thickened, and while they sometimes contain, in the later stages, fibrinous moulds, they are usually empty or partly filled with a

thin, brownish or blood-stained, frothy fluid. Mucosa shows no marked alterations. Blood-vessels are normal.

External inspection frequently shows sharply outlined consolidated lobules alternating with air-containing and atelectatic lobules. The lobular character of the consolidation is well marked, though it tends to lose its definiteness through the confluence of adjacent areas. The consolidation may have various locations but is usually in the posterior and lower part of each lobe and the posterior part of the lower lobe is most frequently involved.

The cut surfaces of the lungs, in the more acute stages, resemble the stage of engorgement in lobar pneumonia. The bronchioles, blood-vessels and framework are not appreciably altered.

Microscopically, these areas show extraordinarily dilated ductuli alveolares, filled with a clear fluid containing only a few leukocytes and a delicate coagulum. Great numbers of pneumococci are scattered throughout the exudate.

The streptococcal form produces lesions which are said to be approximately identical with those described as "lobar pneumonia" in the epidemic of 1918.

The type produced with the bacillus of Pfeiffer either in pure culture or as a complicating organism is said to be fundamentally different from the other types. There is no abundant pleural exudate, but the bronchi exude a thick yellow pus, and the bronchial glands are moderately enlarged. The lung is in large part air-containing, but is studded throughout with nodules of firm consistency. The cut surface of the nodules is very smooth; they are grayish-yellow. They are peribronchial, the center being occupied with the lumen of the bronchiole. The bronchi are filled with an exudate of leukocytes among which numerous influenza bacilli lie, sometimes in clumps, sometimes scattered, but more often inclosed in phagocytes. The bronchial walls are greatly thickened with an infiltration of mononuclear cells, with a few leukocytes, and with the new formation of connective tissue cells. The alveoli contain an exudate which is usually rich in leukocytes but composed largely of desquamated epithelial cells and dense fibrin. This exudate rarely contains influenza bacilli.

Pneumonia followed influenza, either directly without any period of improvement or after a remission in fever, or after convalescence had been established. At the height of the epidemic, when the in-

fluenzal infection was itself severe, patients entered the hospital after but a few hours illness already cyanotic, with fever, dyspnea and physical signs of acute pulmonary edema, and died, within one to three days, from a distinctly respiratory death. Other cases equally acute in onset developed less pulmonary edema at first, but after five or six days death occurred, with physical signs of consolidation. Other patients, in whom pneumonia followed directly on the influenza, either recovered or died of complications after a longer period.

When pneumonia followed a period of temporary improvement the case fatality was not quite so high as in the severe fulminant class.

The onset of pneumonia was frequently insidious, marked only by continuance of fever beyond the influenzal period, or by cough, increasing cyanosis, dyspnea, or only by an increase in the ill appearance of the patient. Physical signs of consolidation such as dulness, changes in breath sounds and localized râles often appeared late—long after it was apparent, from the general appearance, that a severe pulmonary infection had supervened. There were so many exceptions and combinations of symptoms that no definite group of symptoms could be given as material for diagnosis. The physical signs of greatest constancy, and therefore of greatest value for early diagnosis were increased vocal transmission with or without bronchial breathing, groups of fine râles, especially excited by coughing and the intensification of normal breath sounds with or without the addition of bronchial or bronchovesicular quality.

Fever varied from 100° to 104° F. (37.22° to 40° C.) sometimes higher, usually with slight daily remissions. Defervescence was usually by lysis, though there were frequent critical drops of temperature with subsequent convalescence. Pulse varied much with the case, but the relatively slow influenzal pulse sometimes continued during the early days of the pneumonia.

Nose bleed and bloody expectoration which occurred in many influenzas persisted during the subsequent pneumonia and many observers held that patients showing early hemorrhages in influenza were likely to develop fatal pneumonia, i. e., extensive vascular lesions of the respiratory tract increased the susceptibility to severe secondary pulmonary infection.

The leukopenia of influenza often persisted when pneumonia had developed. The failure of leukocytic response in pneumonia

following influenza is so frequent that the presence or absence of leukocytosis in suspected pneumonia is of little aid in diagnosis. The leukocytes were not only not increased in numbers, but they were relatively inactive as phagocytes.

The sputum varied in amount and color; it was sometimes scanty or absent. The usual type—muco-purulent, grayish-yellow, often blood-streaked, sometimes rusty. Sometimes there was more blood; occasionally the sputum was almost all blood.

There was apparently a relation between the type of sputum and the prevailing organism. Where the Pfeiffer bacillus was present the sputa were noted as being greenish-yellow and tenacious; with *Staphylococcus aureus* the sputum was “friable”, purulent, dirty salmon-pink, like anchovy sauce or the contents of an overripe furuncle. These sputa were said to indicate a fatal outcome.

As compared with results in lobar pneumonia the number of positive blood-cultures was remarkably small. The greatly increased proportion of positive cultures obtained shortly before or after death indicate that bacteremia usually represented a terminal invasion. Pfeiffer’s bacillus was rare in blood-cultures. In severe tedious cases positive cultures were more frequent and these were usually streptococci.

Deaths during the height of the epidemic showed few extra-pulmonary complications; later these were more frequent. This is attributed to the initial severity of the infection, which produced death before other organs could be invaded.

The later infections were pleurisy and empyema, lung abscess and gangrene, pericarditis and endocarditis, subcutaneous emphysema, meningitis (simple meningitis, streptococcal or pneumococcal meningitis, epidemic meningitis), peritonitis, jaundice, rupture of abdominal muscles, thrombophlebitis, embolism, otitis media, mastoiditis, paresis of accommodation, albuminuria, nephritis, cloudy swelling, and abscess of kidneys, erysipelas and multiple furuncles.

In treatment no special therapy seemed effective. The most effective remedies were rest in bed, good nursing, a light, easily digested diet, with early treatment of special complications. The most important factor in preventing pneumonia after influenza was found to be early hospitalization, with rest in bed in warm, well-ventilated wards, and with precautions to prevent infection of patients by others with more virulent strains. Many of the

severe pneumonias were in soldiers who had been sitting around the camps during the beginning of the influenzal attack. Nurses who remained on duty while suffering from influenza developed pneumonia almost twice as often as those who went to bed at the first symptoms.

The convalescent care is very important. The degree of prostration is very great, tachycardia and dyspnea follow slight exertion. The amount of food needed is large and the period of convalescence should be long.

THOMAS, H. M., JR.: **Recurrent Type I Pneumonia: Serum Treatment of Two Attacks One Month Apart.** *American Journal of Medical Sciences*, Jan., 1921, clxi, No. 586, p. 103.

The first attack of lobar pneumonia was abrupted on the third day of the disease by serum treatment. Twenty-nine days after recovery the patient developed a recurrent pneumonia Type I. Passive immunity obtained from the anti-pneumococcus horse serum Type I did not protect him from the second attack. One hundred c. c. (3.38 fluidounces) of serum were given for the first attack followed by diffuse urticaria. For the second attack 30 c. c. (1.01 fluidounce) were given with no reaction, and 100 c. c. (3.38 fluidounces) the next day, with no reaction. The author explains the lack of sensitiveness as due to the patient's failure to react in the usual manner by having serum sickness, and it is probable that sensitiveness would have developed in a longer period of time. Wassermann reaction was positive on two occasions while the temperature was up, and negative once during the afebrile stage. In 1918 it had been positive when the patient was afebrile.

A. T. MAYS.

FISHER, M.: **Pulmonary Sequels of Influenza.** *American Journal of the Medical Sciences*, March, 1921, clxi, Part 3, No. 588, p. 365.

Rhinopharyngitis.—After recovery from acute symptoms of influenza there is a persistent productive expectoration due to a chronic inflammation of pharynx and tonsils, for weeks and months. Hoarse-

ness is rare. There is no fever, the pulse is unstable and the chest negative.

General or local purulent bronchitis.—This is characterized by severe cough, profuse mucopurulent expectoration, no loss in weight, no fever, pulse normal, and patient able to pursue his occupation. It must be differentiated from tuberculosis when it affects an upper lobe.

Apical catarrh.—This condition has increased since the epidemic; it is difficult to tell from tuberculosis. There is no fever, no constitutional symptoms of tuberculosis, slower pulse, no retractions of interspaces, and resonance above clavicle remains unimpaired despite numerous subcrepitant râles. Even though the sputum is blood streaked, numerous examinations do not show tubercle bacilli.

Bronchiectasis.—This is on the increase since the influenza epidemics, and follows those cases complicated by pneumonia or pleurisy or both. It is caused by atelectasis, and accumulations of secretions in stenosed bronchial tubes, causing dilatation of the bronchi in the lower lobes. Tuberculosis is excluded in the majority. If in the upper lobe, only repeated sputum examination decides the diagnosis, although the facts that the disease began with influenza, that emaciation is not pronounced, that fever usually is lacking, the pulse normal, and there is clear resonance above the clavicle should be against tuberculosis. In bronchiectasis there are acute exacerbations of fever (100° or 101° F. [37.22° or 38.33° C.]) concurrent with a lessening of sputum. As drainage begins fever and symptoms subside. It is exceedingly rare that tuberculosis should follow influenza.

Pulmonary suppurations.—These are the most serious sequel, and occur in influenzal patients in whom the complicating bronchopneumonia is of a stormy type. Diagnosis of pulmonary abscess is made along the same lines as in bronchiectasis, and in addition sputum is abundant, at times fetid. Continuous or undulating temperature, severe chest pain, prostration and more or less copious pulmonary hemorrhages and physical signs are present. If several sputum examinations are negative for the tubercle bacillus the diagnosis may be made. There is also leukocytosis and an increase in polynuclear cells in abscess.

A. T. MAY

MUDD, S., GRANT, S. B., AND GOLDMAN, A.: **The Etiology of Acute Inflammations of the Nose, Pharynx, and Tonsils.** *Journal of Laboratory and Clinical Medicine*, March, 1921. vi, No. 6, p. 322.

The authors conclude from their experimental work that the causes of acute inflammation of the pharynx, tonsils and nose are as follows:

The filterable virus of Kruse and Foster, inducing apparently a clinical entity, or a type of acute coryza is, according to the experiments of its discoverers, of relatively high virulence and may cause infection practically independently of the action of exciting factors.

Various bacteria, including the pneumococcus, streptococcus, B. rhinitis, B. diphtheriae, Friedländer's bacillus, B. influenzae, and probably also M. catarrhalis, B. septus, M. paratetrigenus, S. aureus, and possibly others seem to be capable of inducing infection of variable extent, duration and symptomatology. The relative virulence of the microorganisms varies within wide limits—both between themselves and at times in the same organism—in some instances high infections of epidemic proportions, largely independent of exciting factors, may be produced: in other instances low, sporadic infection may occur only when some factor or factors serve to depress resistance, general or local, to a point of vulnerability.

Protein sensitization, which is the basis of vasomotor rhinitis and of true bronchial asthma, is also the underlying cause of a relatively infrequent subgroup of acute recurrent "colds".

Various systemic diseases, drugs, mechanical and chemical irritants, chronic nasal affections and reflex neuroses are included among the causes. One factor by which resistance may be lowered to bacterial infection is excessive chilling. Experiments by many workers have shown that animals whose blood temperature is lowered may have decreased resistance to infection. This, however, is probably not the mechanism by which chilling excites the common upper respiratory infections in man.

Further experiments have shown that chilling of the body surface of animals causes congestion of many internal organs. Reasoning from a faulty analogy, the theory has been evolved and made widely current that similar congestion occurs in the upper respiratory mucous membranes of man when chilled, and is responsible for the lowering of resistance. However, the work of the present

authors has shown the reverse to be true, namely, that chilling of the body surface causes reflex vasoconstriction and ischemia in the mucous membranes of the nasal cavity, postnasal space, and palate, oropharynx, nasopharynx and palatine tonsils. It seems not improbable that the ischemia may be the means of lowering local resistance. In other instances the mechanism of Hill and Mueck, i. e., crowding in overheated places followed by emergence into a cold atmosphere, is doubtless responsible for colds.

During the course of the experiments by which the vasoconstrictor reaction to chilling has been demonstrated, 10 cases of cold or sore throat, usually mild, have appeared among the subjects. In a number of instances the clinical symptoms were accompanied by interesting bacterial changes.

C. M. ANDERSON.

KOHL, E.: **Goiter of the Tongue.** (Der Zungenkropf). *Schweizerische medizinische Wochenschrift*, 1921, No. 16, p. 361.

The author operated on a case of goiter at the base of the tongue. Eight years previous a goiter had been removed from the root of the tongue. The woman, about fifty years old, was hard to understand for dyspnea, difficult deglutition and difficulty in speaking had existed since childhood.

In the first operation the tongue had to be shortened about an inch, and could not be protruded on account of the operative scar; speech was then even less distinct. After the second operation the speech was clearer. No symptoms of myxedema or tetany were present. The tumor was of the size of an egg.

Wölfler, in 1890, knew of but one case of goiter of the tongue, although at that time 6 had been reported. From 1897 until 1914, several extensive treatises were published in European literature. Some of the goiters were located at the base of the tongue, some on the back, between the foramen cecum and the epiglottis, others were located above the hyoid bone in the muscular structure. They protruded either upward or downward into the oral cavity.

In the author's case as well as in the cases of others thyroideal tissue was found in the hypertrophic goiter. Among 93 cases of lingual goiter 83 occurred in women, and 10 in men. Seventy-four

were situated at the base, 5 at the root, and 9 were a combination of both types.

In the embryo the thyroid takes its origin at the foramen cæcum, and later on, descends. This explains the occurrence of thyroid tissue and struma in the region of the foramen cæcum, and the reason why all goiters of the lingual basis are located in the foramen cæcum, and the epiglottis. For the explanation of the goiters at the root of the tongue it must be considered that when the primary median thyroid structure moves downward, the ductus thyroglossus lengthens into a thin epithelial duct, the exit of which remains constant, and visible as the foramen cæcum at the base of the tongue. Sometimes the thyroglossal duct extends as a canal as far as the hyoid bone, while from the hyoid it is continued downward to the isthmus of the thyroid and extends as the ductus thyroideus and remains permanent as lobus pyramidalis. During this descent particles of the thyroideal structure may develop as an aberrated struma. Streckeisen has examined the region of the thyroid very minutely and found microscopically that in 27 per cent there was a suprathyroid gland, that is, a glandular formation in front of the hyoid body. In all these cases there was a processus pyramidalis thyroideæ or at least an accessory gland, a glandula accessoria superior vera was found as well, situated between the isthmus and the hyoid bone. He puts these remnants under the heads of (a) glandulæ præhyoideæ, where the gland is located in the mylohyoideus muscle; (b) glandulæ suprathyroideæ, where it lies between the geniohyoid muscles, or lateral to them; (c) glandulæ epiphyoideæ, where they lie above the geniohyoid muscles in the region of the hypoglossi; (d) glandulæ intrathyroideæ, lying in the body of the hyoid bone.

WILLIAMS, C.: **Classification of Goiter: Analysis of One Hundred Cases.** *American Journal of the Medical Sciences*, February, 1921, clxi, No. 2, p. 223.

Group I.—Simple goiter, with few symptoms, hoarseness, and sometimes obstructive breathing or swallowing is present. It should be surgically removed both for relief of pressure and cosmetic improvement. It removes the predisposing danger of hyperthyroidism and cancer.

Group II.—Middle age—persistent enlargement without symptoms. These quiescent goiters suddenly begin to grow. The patient becomes nervous and restless, suffers palpitation, and loss of weight, but no tremor. The condition is relieved by removing the goiter.

Group III.—In this group exophthalmic classic symptoms, and present symptoms of group two, plus tremor are noted. Enlargement is small. The symptoms are of short duration, and the onset of toxic symptoms is coincident with or previous to the appearance of goiter. Surgery is the best treatment, although this is the only group which x-ray has benefitted.

A. T. MAYS.

LINDE, F. G.: **A Case of Dislocated Semilunar Cartilage.** *U. S. Naval Medical Bulletin*, January, 1921, xv, No. 1, p. 132.

An apprentice, 22 years old, had twisted his right knee while playing football. A sudden sharp pain and locking in semiflexion had resulted. After some manipulation the leg was stretched, but during 3 years the knee was locked in semiflexion about thirty times. On opening up the joint the internal semilunar cartilage was seen to be torn and displaced anteriorly. The torn part was removed and a plaster-of-Paris cast applied. In two weeks passive motion and massage were used, and another two weeks later the patient regained full motion and could be dismissed to duty.

LAMBRIGHT, G. L.: **Leukemia: Type Diagnosis by Oxydase Method of Blood Staining.** *American Journal of the Medical Sciences*, February, 1921, clxi, Part 2, No. 587, p. 209.

Hematologically the diagnosis between lymphatic and myelogenous leukemia depends on the differentiation between lymphocytes and myelocytes. By the ordinary method (Wright's) it is difficult to recognize the granules of a myelocyte distinguishing it from a large lymphocyte. By the oxydase method of staining there is rapid and distinct precipitation of the granules. The films are fixed by covering with solution A (alcohol 95 per cent 9 parts, formaldehyde solution 40 per cent gas, 1 part). After two minutes wash with water

and flood with solution B (alpha-naphtol, Merck, 1 gram (15.432 grains); 40 per cent alcohol 100 c. c. (3.38 fluidounces); hydrogen peroxid, fresh, 0.2 c. c. (3.22 minims). Wash with water, immerse in dish of running water for fifteen minutes. Dry and stain with solution C (pyronin, 1 gram (15.432 grains); anilin, 4 c. c. (64.8 minims); alcohol 40 per cent, 96 c. c. (2.56 fluidounces) for two minutes. Wash with water; pour on solution D (0.5 per cent methylene-blue, Grubblers BX) for from thirty to sixty seconds. Wash with water, blot, and mount in neutral balsam.

A. T. MAYS.

LAPENTA, V. A.: **Pathogenesis and Physiopathology of Gall-bladder and Biliary-tract Lesions.** *New York Medical Journal*, 1921, cxiii, No. 1, p. 5.

The advancement in the knowledge of focal infections tends to viewing many disorders more from a physiopathological standpoint than from that of morbid anatomy. Pathogenesis will often lead the way in treatment.

Gall-bladder affections are second in occurrence only to lesions of the appendix. From five to seven per cent of all autopsy cases show lesions associated with stones.

The author proposes a simple division in order to avoid the old otological nosographism, namely:

1. (a) Acute angiocholitis and cholecystitis, with and without calculi, and (b) acute cholecystitis, with or without calculi.
2. (a) Chronic angiocholitis and cholecystitis, and (b) chronic cholecystitis, with or without calculi.
3. (a) Cholelithiasis with chronic infection of the gall-bladder, and (b) cholelithiasis without demonstrable infection of the gall-bladder or bile.

Hematogenous infection is the principal cause of disease of the gall-bladder and biliary ducts. Typhoid, tonsillitis and other focal infections must be sought for in the past history of the patient. Previous or existing chronic appendicitis must be taken into consideration.

Hypercholesterinemia is regarded as a predisposing factor, in gall-stone disturbances. The chief pathogenic rôle, however, is played by infection.

On the other hand, an infected gall-bladder is a chronic focus for infections, and capable of setting up systemic metastatic lesions elsewhere in the body.

Cholecystectomy is advised, but care must be taken not to overlook the removal of a diseased organ.

The author shows, by several statistics that typhoid fever and tonsillitis are responsible for gall-bladder lesions. The causes he gives for women being attacked so much more frequently than men, are sedentary habits, pregnancies with their concomitant stress on hepatic function, and high blood cholesterol content.

The bile is continuously secreted by the hepatic cells, but not, however, continuously discharged into the duodenum. During gastric digestion it flows very slowly, but begins to flow rapidly "as soon as protein cleavage products with acid chyme begin to enter the duodenum from the pylorus, the height being reached when intestinal digestion is at its peak." The bile is stored in the duodenum during the time it is not needed. An "anatomicophysiological mechanism is represented by the gall-bladder and the sphincter Oddi". It is a nervomuscular mechanism controlling the opening of the common duct into the duodenum.

An ascending infection from the duodenum seems improbable. Evidence for an infection through the lymphatic circulation seems insufficient. "Of the avenues of infection we must consider that of portal origin, and that coming from systemic bacterias through the hepatic artery itself and directly to the gall-bladder through the cystic artery."

BOAS, E. P.: **The Value of the Pneumothorax Treatment of Pulmonary Tuberculosis.** *New York Medical Journal*, April 6, 1921, cxiii. No. 11, p. 517.

Artificial pneumothorax treatment, owing to the physiological principles that underlie its rationale, is limited to patients with unilateral lesions, or those in whom the tuberculous process on the other side is quiescent. A positive cure is only rarely accomplished. In

the majority of successful treatments there is distinct temporary relief, the ravages of the disease are checked for a while, the temperature drops, the cough lessens, the patient gains weight, and is much happier and more comfortable. After a varying interval of improvement there arises some disastrous complication which puts a stop to further progress, and the disease pursues its former course. In the meantime, however, there has been gained a period of comfort for the patient, and possibly a prolongation of his life. Again, the treatment may induce a longer arrest of the activity of the tuberculous process and give the patient a year or two of comparative comfort. Hence this treatment is a valuable adjuvant in the handling of selected cases of advanced pulmonary tuberculosis in whom other measures have been of no avail. It frequently gives temporary symptomatic relief but very rarely brings about a cure.

J. ROSE.

ROBERTSON, H. E.: **Tuberculosis from the Standpoint of the Post-mortem.** *The American Review of Tuberculosis*, February, 1921, iv, No. 12, p. 882.

The general incidence of tuberculosis has been shown by Naegeli's findings of 97 per cent of tuberculosis in 500 autopsies performed at Zürich and Burkardt's figures of 91 per cent of tuberculous foci in 1262 autopsies in Dresden. The usual finding in this country varies from 50 per cent to 70 per cent.

The most common class of lesions is the old healed pleuritis with or without fibrous adhesions, which vary from a slight opacity of the apical pleura to complete obliteration of both pleural cavities. The next most common is the old healed miliary lesions of the lungs, spleen, and liver. The evidence consists of small, round, yellowish, sharply circumscribed hyalin nodules ranging from a fraction of a millimetre to a centimetre, and being most common in the liver and spleen. After these come the frank evidence of tuberculosis usually at the right apex, and ranging from an old thickened pleura and trabecular scars to old cavities with thick connective tissue walls. It may be found in the Fallopian tubes and epididymis, the meninges,

pericardium and peritoneum, and lymph-nodes but chiefly in the cervical and bones and joints.

The pathological processes are: acute and chronic abscesses, fulminating and caseating necrosis, rapid fibrosis, granulation tissue, and slowly progressive formation of connective tissue. The author details a very instructive classification of five types according to the degree of reaction to the infection. Particularly instructive is the observation of the large proportion of cases in which old, more or less healed caseous or calcareous lesions are found at the bifurcation of the trachea with or without accompanying fibrous pleuritis, indicating the large part that inhalation plays in the infection of the body by tuberculous bacilli.

C. A. SCHMIDT.

LUND, F. B., AND FOLEY, J. A.: **Hemorrhage From the Stomach and Esophagus.** *Boston Medical and Surgical Journal*, February 17, 1921, clxxxiv, No. 7, p. 163.

Hemorrhage from the stomach and esophagus occurs frequently and treatment often depends upon a correct diagnosis of the cause. Profuse vomiting of blood comes from two widely different causes: either the actual rupture of a varicose vein in the esophagus or a diffuse oozing of one or more very superficial ulcerations, abrasions, or "weeping surfaces" in the stomach. In the following case, the author illustrates that cirrhosis of the liver, even in a young girl, can cause fatal hemorrhage, without previous symptoms of cirrhosis. A girl of 14 suddenly had a severe hemorrhage, vomiting blood six times during the night. The hemoglobin was reduced to 37 per cent and the white count was 1,300,000. Autopsy showed a large spleen (695 grams [24.22 ounces]), cirrhosis of the liver, and varicose veins surrounding the lower end of the esophagus, one of which was shown by injection to have ruptured at a point where the esophageal mucous membrane changes to the cardiac type of gastric mucous membrane.

A second case is reported to show that hemorrhage from a small ruptured vein in the esophagus may be so slow as never to cause vomiting of blood until it has continued for a sufficient time to produce a fatal anemia. The autopsy showed an unusual condition: an esophageal varix due to a small cancer of the head of the pancreas.

The splenic vein and branches of the mesenteric vein at this point showed friable thromboses. The thrombosis of the splenic vein extended throughout the length of the pancreas and into the portal vein. The esophageal veins were somewhat dilated. In the cardiac end of the stomach, on the posterior surface about 3 cm. (1.0811 inches) below the cardia a pin-point area of hemorrhage in the wall was found. The third important cause is erosion of a large blood-vessel, by deep chronic ulcers. Two cases are cited.

M. BANOWITCH.

BRODERS, A. C., AND MAHLE, A. F.: **Primary Lymphosarcoma of the Stomach. A Report of Twelve Cases.** *Journal of Laboratory and Clinical Medicine*, February, 1921, No. 5, p. 249.

Primary lymphosarcoma of the stomach, compared with carcinoma of the stomach, occurs in the proportion of 1 to 68 according to the report of the Mayo Clinic.

In the authors' series of 12 cases of lymphosarcoma of the stomach, the average duration of clinical symptoms was 6.08 months. Eleven patients gave a history of loss of weight, 9 of pain, 7 of vomiting, and 2 of bleeding; 2 had histories suggestive of previous ulcer. The average age of the patients was 46.25 years; the youngest patient was 16, and the oldest 62 years. Eleven were males.

In 7 cases the clinical diagnosis was carcinoma; in 1 ulcer; in 1 abdominal tumor, probably inflammatory; in 1 lesion of the stomach, probably malignant; in 1 pyloric obstruction; in 1 upper abdominal tumor, probably the pancreas.

Resection was performed in 6 cases; in the other 6 the condition was found to be inoperable on exploration. The neoplasm was located for the most part in the pyloric portion of the stomach.

PATHOLOGY.—*Macroscopic Examination.*—On section of the stomach the rolled edged border of the neoplasm with its raised surface presents the appearance of a mushroom, lying in the folds of the normal mucosa. The surface may or may not be ulcerated; the ulcerations may be shallow or deep. On section, the neoplasm is soft and resilient and pale straw-colored; it is limited largely to the submucosa, but here and there invades the musculature. The thickness of the stomach wall including the tumor may be as much as 3

cm. (1.08110 inches). The growth in one of the cases of this series was very extensive. It appeared to extend directly through the muscle and serosa into the gastrocolic omentum. The surrounding lymph-nodes were also extensively involved.

Microscopic Examination.—The tumor cells massed around the glands of the gastric mucosa involve the entire space of the submucosa and extend down between the muscle fibers. The cells resemble for the most part those of the germ center with areas of normal lymphocytes scattered here and there. These cells are larger than normal lymphocytes, usually irregular and often contain prominent single nucleoli (one-eyed cells). The tissue is recognizably lymphoid, but the absence of germ centers and the fact that the entire section is but a homogeneous structureless mass of cells, with the exception of a few lymphocytes, are particularly striking. In 2 of the 6 cases in which a portion of the stomach was resected the lymph-nodes were involved, and in 1 the serosa also. In 4 of the 6 cases which proved to be inoperable at the time of exploration the adjacent lymph-nodes were involved.

RESULTS.—Two of the 6 patients who had resections died of peritonitis following operation. One patient died four months after operation with a recurrence in the lower bowel, liver, and the remainder of the stomach. One case returned practically five months after operation in a poor condition; he had lost twenty pounds and had a mass in the left epigastrium which was probably a recurrence. Another case returned practically seven months after operation, apparently with a recurrence. The remaining patient was operated on too recently to be considered in the results. Four of the 6 patients who had operations are dead. They lived for from six weeks to four months after exploration. Information has not been received from the remaining two patients.

C. M. ANDERSON.

LEVY, L. H.: *The Mouth from a Gastroenterological Viewpoint.*
New York Medical Journal, 1921, cxiii, No. 1, p. 14.

Affections of the mouth may produce disease of the stomach, intestines or appendix, and changes in the stomach and intestines may show in the mouth.

Rosenow, some years ago, proved that the same organisms removed at operation from excised appendices or the craters of ulcers were present about the various structures of the mouth. Impaired mastication, pus or bacteria passing into the masticated food will sooner or later set up an inflammation. Septic gastritis may result. The stomach acidity will destroy the bacteria only to a limited extent, and the intestines are swamped with infectious organisms.

Not only apical abscess and pyorrhea alveolaris, which are frequent, but also the chewing with an upper plate and the bare gums of the lower maxilla, or of too bare gums, will cause gastric disease, but will be relieved with removal of the oral cause. This was proven by several of the author's cases. With one patient who refused to get teeth, the gastric ulcer persists.

The foul taste and burning in the mouth are manifestations of a hyperacid stomach and constipation. During sleep there is a regurgitation of gastric contents into the esophagus and often into the mouth in small quantities. If the stomach contents are hypoacid the tongue is furred, and thick, while in the hyperacid it is clean, red and moist.

Salivation without local cause is another symptom of gastric disorder, and often occurs in carcinoma of the stomach. Salivation may be caused by ragged teeth, and when they are smoothed, it may cease.

One of the commonest mouth complaints is the canker sore. It sometimes proves to be Vincent's angina. The odor and its tendency to spread are characteristic. Some patients have recurring attacks of herpes of the mouth with a history of nervousness. The most frequent canker sores, however, result from ulcerated infected teeth, and hyperacidity of the mouth.

Bad taste may come from habitual mouth breathing, but also from hypoacidity with a furred tongue. Bad teeth and pyorrhea, submucous abscesses under some cap, and food débris in the tonsil crypts must be taken into consideration and treated.

Brassy taste may arise from the touching of two different metals in the teeth, electrolytic action causing a solution of the metal. Neutralization of the acid usually helps to stop the taste.

The author observed a case of pemphigus, which started unrecognized in the roof of the mouth under a plate, and became manifest only after the eruption on the face.

Another case of pernicious anemia was not recognized at a stage when sores in the mouth prevailed. The mouth symptoms of many other conditions have not been considered, such as the luetic, tuberculous or the carcinomatous.

KOUINDJY, P.: **Treatment of Salivary Fistulae by Massage and Hot Air.** *New York Medical Journal*, 1921, cxiii, No. 1, p. 8.

A typical case of salivary fistulae was treated with good results by massage and hot air. The patient was a soldier suffering from a badly consolidated fracture of the mandible. Curettage, lavage of permanganate of potash, etc., was of little avail. Saliva escaped from the wound and could not be controlled.

The author had gained the experience during the war, that extensive wounds with fistulae or badly cicatrized, atonic wounds, or those suppurating, finally cicatrized when massotherapy, combined with hot air, was used.

Superficial and deep rubbing, and centripetal vibrations from the periphery to the centre were used, not touching the fistulae. Later hot air was added on the surface and in the buccal cavity.

The action is thus explained. Application of hot air causes hyperemia which brings about a local change, comparable to a caustic action, and in addition produces an analgesic action upon the tissues and a progressive drying of the secretions. "The last effect can be compared to a resection of the auriculotemporal nerve. As does resection, the hot air causes a decrease in the salivary secretion with a resorption of the exudate of the infiltrated regions." The mechanical action in massage has a favorable influence on the arterialvenous, and lymphatic circulation. The reflex action increases the nutrition of the tissues by stimulating the terminal nerves.

BOYER, E. E. H.: **Benign Tumors of the Gastro-intestinal Tract.** *Journal of Laboratory and Clinical Medicine*, March, 1921, vi, No. 6, p. 339.

The finding of benign tumors in the gastro-intestinal tract is quite unusual, and frequently very interesting and important. The least

important of such neoplasms are those in the stomach, since the chance for obstruction to the canal is less here than in other portions of the gut. The small intestine, especially the ileum, appears to be the seat of benign growths more frequently than any other part of the alimentary tract; and the appendix gives rise to tumors less frequently than any other part. In order of frequency, the principal types of benign neoplasms are myomata, lipomata, adenomata, fibromata.

Sometimes such growths give rise to no symptoms, and are found by accident during operations for other conditions, or at autopsy. In some cases the symptoms are very indefinite and misleading, especially if the tumor is growing toward or beyond the serosa. But when definite symptoms appear the patient usually complains of obstinate constipation, less often of intestinal hemorrhage. The constipation in such cases may be due to intussusception, but is more likely to be caused by obstruction of the lumen due to the presence of the tumor which has grown toward or beyond the mucous. A diagnosis has probably never been made.

Sometimes the tumors grow into and obstruct the lumen; but others may progress outward to the serosa. Those of the former case, obviously, are the ones which cause the most pain and discomfort, and are usually more dangerous to the patient.

Among the factors which may be responsible for the direction of growth of the neoplasm are: (1) point of origin of the new growth; (2) mechanical resistance of adjacent layers; (3) biologic resistance of neighboring cells; (4) intestinal stasis.

The symptoms may simulate those of malignancy in the affected part, so that the prognostic value of these neoplasms should not be overlooked.

C. M. ANDERSON.

SCHULTZ, E. W.: **On the Etiology of Typhus Fever.** *American Journal of Medical Sciences*, January, 1921, clxl, Part 1, No. 586, p. 78.

The writer's bacteriological and serological investigations together with data accumulated by other workers shows that an organism, *Proteus* X19, has more in its favor as being the cause of typhus fever than the Plotz bacillus, but on immunologic and other grounds it appears that both of these bacteria are secondary invaders. Typh-

us fever is more or less a mixed infection. There may be a state of symbiosis. The *Rickettsia prowazeki* are probably the cause of typhus fever. The latter seems to constitute a new group of micro-organisms, probably more closely related to the protozoa than to the bacteria.

A. T. MAYS.

GOECKEL, H. J.: **The Diagnosis of Typhoid and Paratyphoid Infections.** *Journal of Laboratory and Clinical Medicine*, March, 1921. vi, No. 6, p. 335.

The classic Widal reaction is today a questionable one on which to base a diagnosis of typhoid fever, as is done by many physicians. Besides the late appearance of a positive blood test in many cases, it has in recent years been demonstrated that homologous agglutinins not only exist for all members of the typhoid-colon group of bacteria, but likewise for these and for gonococci. We must also take into consideration that there are probably ten million people in the United States who, either through infection or by prophylactic immunization, have developed or been sensitized to agglutinin production. This agglutinin production persists over long periods of time. Consequently we are liable to get a positive Widal reaction in low dilutions of serum where an active typhoid infection is not present, thereby possibly misleading rather than aiding the diagnosis.

It is likewise still to be shown whether a gonococcic infection can reactivate or bring about an increased production of the homologous agglutinins in a typhoid-paratyphoid sensitized person when a gonococcic infection exists. In the dilutions of the high titer agglutinating serum employed no cross fixation is obtained. This has been demonstrated on pure cultures and various mixtures of the same by the writer.

The author further summarizes: The high titer agglutinating serum can be employed to demonstrate the presence of typhoid and paratyphoid bacilli in feces both for diagnostic purposes in suspected typhoid infections and to demonstrate their presence in the feces from convalescing cases without resorting to cultures.

The typhoid bacilli can appear in the urine at the same time that an extensive circulatory bacteriemia exists, before a positive

Widal reaction is obtainable. The finding of the bacilli in the urine may prove the only definite means of establishing a definite typhoid diagnosis.

A typhoid bacillus cystitis can apparently exist without producing an agglutinin production in the blood.

A typhoid or paratyphoid bacteriemia unsuspected in an operative case may prove disastrous to the patient. This paper shows that the detection and identification of motile bacilli in the urine can prove of considerable value from a diagnostic standpoint.

C. M. ANDERSON.

SECTION ON LABORATORY AND RESEARCH

RICHTER, C. M.: Influenza Pandemics Depend upon Certain Anticyclonic Weather Conditions for Their Development. *Archives of Internal Medicine*, March, 1921, xxvii, No. 3, p. 361.

An elaborate study of weather conditions together with a consideration of morbidity and mortality statistics lead Richter to certain conclusions that are well summed up in the introductory paragraph of his interesting paper. He states that "Air pressure records (1826-1920) exhibit the fact that high pressure periods lasting a number of years vary with similar periods of low air pressure. Changes in solar activity harmonize with and apparently cause such pressure periods. Influenza pandemics and pneumonia epidemics develop only during high pressure periods. The influenza pandemics of 1890, 1891, 1918, 1919, and 1920 prove this fact as far as records are obtainable for the Northern Hemisphere and probably also for the Southern Hemisphere. All these epidemics come to a more or less sudden end following the advent of distinctly low air pressure. Records of cities in a highly diversified climate, as, for instance, California, prove that no meteorological element, except air pressure, runs parallel to the development of influenza or pneumonia epidemics. Since it is definitely proven that these epidemics are a function of anticyclonic weather values, we must extend our work to an investigation of the physics of the atmosphere. The proposition is, whether the atmosphere during these epidemics acts as the carrier of a certain virus, or whether its physicochemical quality, changed during such weather periods, is the cause of influenza." Richter's consideration of the proposition apparently leads him to incline toward the latter view.

T. HOWARD.

LOEWEL, L., AND ZEMAN, F. D.: **Cultivation of a Filterable Organism from the Nasopharyngeal Washings in Influenza.** *Journal of the American Medical Association*, April 9, 1921, lxxvi, No. 15, p. 986.

Nasal washings and pharyngeal swabs were obtained from cases of influenza. For the most part pharyngeal swabs were used. These were washed in several changes of physiologic sodium chlorid solution and the slightly turbid fluid thus obtained was filtered through a Mandel filter. The filtrates were cultivated anaerobically and aerobically.

The preparation of the anerobic medium is as follows: Fragments of sterile rabbit kidney are transferred to tubes 20x1.25 cm. (7.874x.492125 inches) covered with from 3 to 4 c. c. (48.6 to 64.8 minims) of sterile ascitic fluid and incubated for twenty-four hours. The tubes grossly contaminated at this time are discarded. The tubes containing sterile kidney tissue and ascitic fluid are inoculated, and ascitic fluid added to form a column about 10 cm. high. Anaerobiosis is perfected by the addition of a layer of melted sterile petrolatum.

A semisolid medium has also been employed. The optimum solid medium is of a gelatinous consistency, made so by the addition of one part of 2 per cent glucose agar to from four to five parts of ascitic fluid, the kidney tissue being added as usual.

A successful growth in the anaerobic cultures is recognized from the fourth to sixth day by a clouding of the medium commencing around the kidney tissue.

Material for transplants and smears is taken from dependent portions of the fluid cultures. The smears are fixed with methyl alcohol and then stained with Loeffler's alkaline methylene-blue, dilute Giemsa solution or polychrome methylene-blue.

In stained smears with a magnification of 1,200 diameters, the organisms appear mostly as minute globular bodies which are arranged singly, in diploform, in short chains or clusters. They are decolorized by Gram stain. The individual organisms have an average diameter of 0.25 micron (.00025 meter).

The organism has been obtained consistently from the filtered nasopharyngeal washings of uncomplicated influenza patients in the early stages.

Characteristic lesions have been produced in lungs of rabbits by the intratracheal inoculation of initial cultures and transplants.

With a similar technic the lesions were also produced in rabbits by initial cultures preserved at 37 C°. (98.6° F.) under strict anaerobic conditions for fourteen months. The organism was recovered from the lungs of animals injected with these cultures.

Rabbits showing these lesions manifest within twenty-four hours after inoculation, apathy, rhinitis, dyspnea, ruffling of the fur, conjunctivitis, and elevation of temperature. In rabbits with stertorous breathing, numerous moist râles and sibilant and sonorous breathing was heard over the chest. The leukocyte count was diminished.

The lungs of these rabbits are usually very voluminous and present a striking picture of acute emphysema. The normal, pale, yellowish-gray surface of the organ is mottled with deep pink in large diffuse areas. In these pink areas are often small hemorrhagic foci.

The cut surface drips a blood-stained fluid and frothy edema fluid is sometimes present in the lumen of the trachea and bronchi. The mucous membrane of the latter shows intense congestion and is often stippled with minute hemorrhagic points.

Microscopically there is: (1) emphysematous overdistension of the alveolar air spaces; (2) small hemorrhages into the walls of bronchi and the presence of red blood cells in the bronchial lumen; (3) congestion and sometimes edema of areas of lung parenchyma; (4) hemorrhagic extravasations into interstitial tissue of the alveolar spaces, filling larger or smaller groups of them with red blood cells; (5) absence of ordinary inflammatory exudate; (6) occlusion of numerous interalveolar and interstitial capillary loops with blood platelet thrombi.

R. H. BENNETT.

OLITSKY, P. K., AND GATES, F. L.: Experimental Studies on the Nasopharyngeal Secretions from Influenza Patients. II. Filterability and Resistance to Glycerol. *Journal of Experimental Medicine*, March, 1921, xxxiii, No. 3, p. 361.

Material more active than the patient's nasopharyngeal secretion was obtained by first injecting intratracheally into rabbits the nasopharyngeal washings from an early (12-hour) influenza case. The active material was transmitted through two successive rabbits by injecting unfiltered lung of the previous rabbit. The lung tissue

of the last rabbit obtained at the height of the reaction was ground, filtered and used. The filtrate gave no growth on blood agar plates, but injected intratracheally into a rabbit gave rise to a fall in the number of leukocytes, loss of weight, and slight rise in temperature. The animal was killed two days after inoculation and the autopsy showed only a lung pathology characterized by edema emphysema and hemorrhage. On section blood-stained frothy fluid escaped and hemorrhages were observed. Microscopic observation confirmed the macroscopic. No growth was observed on aerobic culture.

The effects produced in the rabbit by inoculation of this active agent filtered or unfiltered, obtained originally from the nasopharyngeal secretions of the human, can also be induced in the guinea pig.

The agent can withstand the action of glycerol in a sterile 50 per cent solution for periods up to 9 months.

H. M. FEINBLATT.

RICH, A. R.: Conditions of the Capillaries in Histamin Shock. *Journal of Experimental Medicine*, February, 1921, xxxiii, No. 2, p. 287.

The author studied directly the effects of histamin upon the capillary system to determine (1) whether histamin is an endothelial poison acting locally upon capillaries to produce dilatation of their lumina; (2) whether the capillary bed under histamin shock dilates to a sufficient extent to endanger circulation; (3) whether such a dilatation precedes or follows the circulatory failure occurring in shock.

Histamin was applied locally on the omentum of the cat and careful microscopic inspection disclosed no change in the size of the capillaries or in the flow. In another series of animals while a field of omentum was being observed the animal was thrown into a state of shock by an intravenous injection of 4 mg. (0.004 gram) histamin. A marked fall was observed in blood-pressure and the capillary flow was greatly slowed but no change was observed in the size of the capillaries.

Other irritants such as croton oil, gold and sodium chlorid, cantharides, turpentine, etc. applied locally produced no dilatation.

The effects of histamin were then observed in fixed and stained preparations. Normal cats were anesthetized and the abdomen opened and flooded with a fixative. The omentum was quickly excised,

transferred to a dish of fixative for twenty-four hours, and then stained with hematoxylin and van Gieson. The omentum here showed the normal state having been fixed before being subjected to exposure or handling. Control specimens of omentum, fixed after exposure and handling in such a manner as employed in the earlier observations of capillaries, demonstrated the effects of even the most careful handling. The capillaries of the manipulated omenta showed the arterioles, capillaries, and venules distinctly dilated tortuous and engorged with blood, and furthermore, there appeared a marked increase in the number of capillaries as compared with the non-manipulated.

The observations here were in accord with Krogh's demonstration that normally, at any given time, only a relatively small portion of the capillary bed is open to the blood stream, many of the capillaries being collapsed and invisible. These closed capillaries open up under conditions that excite their dilatation.

Animals thrown into histamin shock and with the omenta fixed at various intervals showed dilatation of capillaries before any fall to shock level of blood-pressure. The fall in pressure could not be attributed to cardiac failure but to capillary dilatation. Death in shock results from respiratory failure.

H. M. FEINBLATT.

BISAILLON, M., AND MATSON, R. W.: **Anaphylaxis in Asthma and Hay-fever.** *Northwest Medicine*, 1921, xx, No. 4, p. 84.

The authors consider the anaphylaxis in asthma and hay-fever from the same standpoint. They are both intimately associated, having the same underlying causes. They have been seen together in 40 per cent. The fact of asthma being caused by the emanation from certain animals, certain pollens, and foods, has been explained only after applying phenomena of anaphylaxis. Hay-fever manifestations were interpreted in 1906 by anaphylaxis and in animal experiment the anaphylactic reactions were found to be clinically the same as the symptoms of bronchial asthma in the human. Anaphylaxis, as a cellular reaction due to fixation of antigen with antibody in a previously sensitized individual, exists in asthma, hay-fever, urticaria and angioneurotic edema. * What is known about this ana-

phylaxis is that a protein inhaled, ingested or absorbed is a factor in causation. In bronchial asthma the proteins are food proteins, pollen proteins, epidermal proteins (horse dander, feathers, etc.), and bacterial proteins (foci, teeth, tonsils, sinuses, etc.).

In a series of 600 cases of asthma reported by Walker, 16 per cent were caused by epidermal proteins, the most frequent being horse dandruff, cat hair, feathers, cattle hair, and wool. Twelve per cent were caused by food protein, 10 per cent by pollen proteins. Of the food proteins, the cereals were the chief offenders, the remainder being caused by various other foods. Of the cereals the split wheat proteins, proteose glucosin, globulin and gliadin gave the most reactions. Barley, potatoes, rye, oats, corn and common vegetables may be an occasional cause. Food proteins, egg, casein, lactalbumen, fish, pork, lamb, chicken or beef may be the cause. Cereal grain, eggs and milk are the most frequent cause of asthma during infancy. Walker found that of those who contracted asthma in infancy 80 per cent were sensitive to proteins; of those who got it in childhood 60 per cent were sensitive; of those starting in young adult life, 50 per cent; of those in adult life, 25 per cent and of those over 50 years of age developing asthma, none proved to be sensitization cases.

Hay-fever, in 73 per cent, does not develop until after the twentieth year. It is possible that certain foods may produce anaphylaxis from which hay-fever symptoms may result. The treatment of hay-fever consists in prophylaxis. Immunization must begin six weeks before pollinating season. In specific sensitization cases, the protein at fault may be administered, even during the attack. Irrigation draining of infected sinuses, correcting any gross pathological abnormalities, infected teeth and tonsils, should be resorted to.

In asthma desensitization is tried. This will result in cures and marked improvement in the specific cases. In non-sensitization cases autogenous vaccines made from sputum and pus from accessory sinuses are of benefit.

There is no doubt as to the specificity of protein hay-fever and asthma. Patients reacting to timothy will not react to horse dandruff. Certain pollens are indigenous to certain localities. Proper test solutions should be made to specify the cases. "Desensitization is based on accurate scientific principles of immunity". This is the only procedure which is agreed upon by all observers. "Asthma is not a disease, but a term applied to an anaphylactic state, caused by

protein irritants. The causes, therefore, will be as many as there are proteins acting as irritants."

HEKTOEN, L.: **Specific Precipitin for Bence-Jones Protein.** *Journal of the American Medical Association*, April 2, 1921, lxxvi, No. 14, p. 929.

Rabbits have been injected intravenously every four or five days for four or five times with increasing quantities of urine containing Bence-Jones protein. The amounts injected have been 2, 4, 8, 12, and 16 or 20 c. c., (32.4, 64.8 minims, 2.16, 3.24, 4.32, 5.42 fluid-ounces) and the animals have been bled on the seventh or eighth day after the last injection. The tests are made in a small tube by the contact or ring method, a small quantity of antiserum being placed below the dilution of urine or blood serum, and the results are read after one-half hour at room temperature.

The serum of rabbits injected as described may contain a specific precipitin or precipitins that cause precipitates in urine or blood serum containing Bence-Jones protein. Precipitation may be obtained in dilutions of urine from 1:20 up to as high as 1:32000 or 1:40000.

Positive reactions are obtained with the Bence-Jones precipitin serum in dilutions of the urine far beyond the highest dilution giving precipitation with ordinary antihuman rabbit serum of greater precipitating effect in dilutions of human serum than the Bence-Jones antiserum.

On removal of the ordinary proteins from the Bence-Jones urines by precipitation with the antihuman serum, the Bence-Jones protein is left behind and now no precipitate takes place except with the Bence-Jones antiserum and in practically as high dilutions of the urine as before.

All the precipitins in Bence-Jones antiserum for the albumins and globulins may be removed by adding suitable quantities of human serum followed by centrifugation after some hours, a procedure that leaves behind pure Bence-Jones precipitins in about one-half the original concentration. This purified Bence-Jones antiserum may give reactions with blood serum in cases of myeloma, showing conclusively the presence in the blood of Bence-Jones protein.

BLAKE, F. G., AND TRASK, J. D., JR.: **Studies on Measles. I. Susceptibility of Monkeys to the Virus of Measles.** *Journal of Experimental Medicine*, March, 1921, xxxiii, No. 3, p. 385.

Experiments were conducted upon monkeys which were inoculated intratracheally with nasopharyngeal washings from cases of measles in the preëruptive and early eruptive stages of the disease. The unfiltered washings from 7 cases of measles injected into 7 monkeys resulted in 5 cases with definite symptoms. One animal, in which the material was inoculated into the mucous membrane of the nose and throat, also developed the symptoms. Nasopharyngeal washings, introduced intratracheally in 2 monkeys, from 3 cases of measles after filtration through Berkefeld filters, gave the same group of symptoms.

This group of symptoms was successfully carried through six passages by intratracheal injection of saline emulsions of the skin and buccal mucosa of monkeys killed from two to six days after the onset of the reaction. From the fourth passage monkey the reaction was successfully induced in three monkeys by means of citrated blood injected intravenously. The blood was found capable of inciting the reaction from at least the seventh to the thirteenth day after inoculation of the donor monkey. Cultures of the blood gave no growth.

The symptoms induced were definite and characterized by an incubation period of from six to ten days during which time the animal was listless and drowsy, the conjunctivæ became infected, small hyperemic macules appeared on the lips. These spots increased in number and in three or four days formed a diffuse, red, granular rash extending to the inside of the cheeks. From one to four or five days after the onset small discrete, red maculopapules appear on the skin, as a rule first showing on the face. This eruption extends and in two or three days may involve the neck, shoulders, upper arms, chest, abdomen and thighs. From the sixth to the tenth day after onset, all the symptoms have disappeared and the animal appears well. The blood picture shows a leukopenia. Associated symptoms are photophobia, diarrhea, and fever with occasionally rhinitis and bronchitis. Histological examinations were made of the skin lesions and of the tongue. Exudative and proliferative lesions about the corium of the capillaries were noted in which the endothelial leukocyte formed the principle cell. These cells were found invading in

some places the epithelial layers of the hair follicles, the sebaceous glands, and epidermis. Similar changes were noted in the mucous membrane of the lips and in the tongue. Aerobic and anaerobic cultures were negative during all periods of the disease. The evidence indicates that monkeys are susceptible to inoculation with the virus of measles.

H. M. FEINBLATT.

NAKAHARA, W., AND MURPHY, J. B.: **The Lymphocyte in Natural and Induced Resistance to Transplanted Cancer. VI. Histological Comparison of the Lymphoid Tissue of Naturally Immune and Susceptible Mice.** *Journal of Experimental Medicine*, March, 1921, xxxiii, No. 3. p. 327.

Normal mice inoculated with mouse cancer grafts may be either susceptible or refractory. Those that are resistant show a lymphocytosis in the blood stream whereas those susceptible show no such increase. Treatment with α -ray destructive to lymphocytes removes the immunity otherwise present.

A study was made of the difference in the nature of the changes in the lymphoid organs of the immune and of the susceptible mice. The immune animals showed a tendency to lymphoid hyperplasia after cancer inoculation while in the susceptible mice depletion of lymphoid tissue took place.

H. M. FEINBLATT.

GORHAM, F. D.: **Variations of Acid Concentration in Different Portions of the Gastric Chyme, and Its Relation to Clinical Methods of Gastric Analysis.** *Archives of Internal Medicine*, April, 1921, xxvii, No. 4, p. 434.

The ordinary method of carrying out the so-called "fractional method" of gastric analysis consists in removing a small quantity of gastric contents from the stomach at fifteen-minute intervals after the administration of a test meal. In order to determine whether such samples represented the acidity of the entire gastric contents at the time, Gorham removed 10 c. c. (2.71 fluidrams) samples until

the stomach was empty, in rapid succession at various intervals after a test meal. . . An analysis of these samples showed great variations in the acidity. For example, in a patient with a perforating duodenal ulcer, where only a trace of free HCl was observed in the first sample removed after forty-five minutes, one of the successive portions showed a total acidity of 118 and a free HCl of 106. The author concludes that in the fractional method of gastric analysis, the small portion removed may or may not be representative of the gastric contents remaining in the stomach.

CORPER, H. J., GAUSS, H., AND RENSCH, O. B.: **Resistance to Tuberculosis. A Non-immunologic Chemical Factor Worthy of Consideration.** *Journal of the American Medical Association*, April, 30, 1921, lxxvi, No. 18, p. 1216.

The author planned a series of experiments with the tubercle organism based on the theory of Weber that the tubercle bacillus is inhibited in its growth by carbon dioxide.

A series of cultural and animal experiments were performed. A large series of tubes of glycerin agar were inoculated with a definitely known strain of human tubercle bacilli, capable of giving good growth on this medium within four weeks at incubator temperature. From some of these tubes the carbon dioxide was entirely removed by means of an attached sodium hydroxid absorption tube. In others the carbon dioxide content was varied from that of the concentration of air to pure carbon dioxide. In order to ascertain the amount of carbon dioxide present by volume the gases were analyzed before and at the termination of the experiment.

These experiments revealed that a small amount of carbon dioxide is essential for the growth of the tubercle bacillus in the test tube. A concentration of carbon dioxide as low as 3 per cent by volume in the air distinctly inhibited the growth of the bacillus, while an exposure to a gas of 15 per cent for one month, so injured the bacilli that they would not subsequently grow in air.

Tubes of glycerin agar were inoculated with human tubercle bacilli and stoppered with paraffined cotton plugs, which allow easy ingress and egress of gases. Some of these tubes were inserted into

the subcutaneous tissues of dogs with the opening of the tube exposed to atmospheric air, and some were completely buried in the tissues of the animals and in the abdominal cavity. The tubes with the external opening, after from four to six weeks, revealed luxuriant growth in the majority of cases, while the buried tubes were in every case negative, indicating that the gases of the body are entirely capable of inhibiting the growth of the human tubercle bacillus in the test tube.

It appears that carbon dioxide may play a significant rôle in the resistance to tuberculosis.

R. H. BENNETT.

ALLEN, F. M. **Experimental Studies in Diabetes. Series II. Changes in Assimilation by Alterations of Body Mass.** *The American Journal of the Medical Sciences*, Jan., 1921, clxi, Part 1, No. 586, p. 16.

It is not possible to demonstrate an abnormal susceptibility to diabetes in obesity on the basis of a reduced mass of pancreas in proportion to the body mass. Obesity or senility does not cause demonstrable lowering of glucose assimilation. The assimilative power of diabetic animals rises and falls inversely with the body weight, and it is established on different diets, and is not due merely to the variation of glycogen protein. It is suggested that obese dogs are more susceptible than normal dogs. There was no evidence of harm from either carbohydrate or gain in weight so long as these signs of overstrain of the carbohydrate side of metabolism were avoided: but forcing either the carbohydrate ration or the total nutrition beyond the limits set by these danger signals resulted in downward progress and finally hopeless diabetes. If considerable masses of active muscle tissue (a limb) are removed by amputation, the effects upon assimilation are negligible compared with those of similar losses of weight produced by undernutrition. The effects of undernutrition are due to a reduction of food supplies and metabolism rather than to a reduction of active protoplasm although there must necessarily be some relation between the mass of pancreas and the mass of body-cells which it can supply with hormone. The experiments indicate a direct quantitative participation of this hormone in the metabolism of matter

and furthermore in exogenous rather than endogenous metabolism. Clinically the principle should be continued to the point of relieving the pancreatic function from overstrain, and a constant watch maintained for hyperglycemia.

A. T. MAYS.

NOGUCHI, H., AND KLIGLER, I. J.: **Experimental Studies of Yellow Fever in Northern Peru.** *Journal Experimental Medicine*, February, 1921, xxxii, No. 2, p. 239.

The work is a continuation of the authors' study of the *Leptospira icteroides*, first isolated from certain cases of yellow fever by the authors in Guayaquil in 1919.

In an epidemic in northern Peru, the authors observed and studied 14 cases of typical yellow fever. Of these, 9 were observed at Payta where the conditions for study were particularly adverse and animal study was much handicapped. Five cases were observed at Morropon and Piura. Of these, 3 showed living leptospira. On culture, by inoculation into suitable guinea pigs, typical *Leptospira icteroides* infection was produced from 4 of the 5 cases.

In the above 14 cases, typical leptospira infection, together with the demonstration of the organism in the experimentally induced infection, was positive in 4 cases, while in the majority of the others mild non-fatal infection was observed. The organism isolated here was morphologically, culturally, and biologically identical with the Guayaquil organism.

H. M. FEINBLATT.

LEWIS, W. H., AND WEBSTER, L. T.: **Migration of Lymphocytes in Plasma Cultures of Human Lymph-nodes.** *Journal Experimental Medicine*, February, 1921, xxxiii, No. 2, p. 261.

Studies were made from normal and pathological lymph-nodes obtained at operation. Pieces were dropped in Locke-Lewis solution and cut into small fragments 0.5 mm. or less in diameter.

About 5 c. c. (1.35 fluidrams) of blood were kept in a paraffined test tube in a freezing mixture. The blood was then centrifugalized

and the plasma used for culture, the unused portion being replaced in the freezing mixture.

Studies were made of the lymphocytes in the culture, their structure, shape and rate and path of migration.

These cells were found to be the first to migrate out of the plasmic clot from the pieces of explanted gland and proceeded away from the explant. The rate of migration varied from 0.03 to 0.0013 mm. per minute.

At rest the lymphocyte assumed a rounded form. When migrating their form became very distinctive—so much so that they could not be confounded with other cells; they migrated with the nuclear end first and then were elongated. The elongated tail contained the endoplasm and showed a few granular mitochondria and a few granules that took up neutral red.

H. M. FEINBLATT.

STONE, H. B.: **The Toxic Agents Developed in the Course of Acute Intestinal Obstruction, and Their Action.** *Surgery, Gynecology, and Obstetrics*, 1921, xxxii, p. 415.

Up to 1910 intestinal obstruction was known as a highly dangerous and often fatal condition. Infection disorganization of the nervous mechanism and intoxication, singly or jointly, were held responsible for death. The author with Whipple and Bernheim experimented on dogs and found that with obstructed loops of bowel death resulted directly from intoxication, and not from nervous disturbances, circulatory obstruction, or desiccation. Toxic material from obstructed loops caused death in normal dogs when injected. This toxic substance is formed independent of food or secretions of the stomach, liver or pancreas. Death is due to an intoxication originating from the obstructed bowel. In obstructed bowel-loops, so prepared as not to contain food, bile, gastric or pancreatic juice, a material is formed which, when diluted, autolyzed, sterilized, filtered and injected into the veins of healthy animals causes a drop of blood-pressure, collapse, fall in temperature, salivation, vomiting, profuse, often blood-stained diarrhea. Splanchnic congestion, especially in the villi of the duodenal and jejunal mucosa, is found at autopsy. The toxin is found in the intestine and its mucous lining.

Whatever the difference of opinion as to the precise chemical nature of the toxins produced in the obstructed bowel, there is unanimity as to the results. The toxic chemicals are developed in the process of protein disintegration. The precise cause, bacterial or other, of the protein disintegration that results in toxin production is not yet fully known, nor is the mechanism of absorption.

The clinical surgeon, according to the author's opinion, finds a scientific reason and confirmation for the necessity of prompt relief of the obstruction and evacuation of the contents of the obstructed bowel. The nonprotein nitrogen content of the blood is used as a preoperative guide as to the degree of intoxication and a postoperative guide to prognosis.

Postoperative measures tend to combat severe chemical poisoning.

OLIVER, J.: **I. Mechanism of Urea Excretion.** *Journal of Experimental Medicine*, February 1, 1921, xxxiii, No. 2, p. 177.

Experiments were carried out upon rats. These were fed upon corn meal and urea, and in some instances were given urea intraperitoneally by injection. These animals as well as others used as controls were then killed and the aorta exposed in each case. A solution of xanthydrol in alcohol and acetic acid was injected until the kidney was completely fixed. Thin slices were cut and placed in 95 per cent alcohol over night and embedded in paraffine for sectioning. Urea combines with xanthydrol to form yellow crystals.

The injected kidneys showed the crystals all through the tubules. These in the capsular space were few but more were found in the proximal convoluted tubules and a marked increase at the duct of Bellini. Parts of the tubules were always found free of the crystals. The kidney cells in the region of the tubule containing the crystals contained them also.

Based upon the fact that the urea in the proximal convoluted tubule cells is present in a higher concentration than that of the blood or the other kidney tubule cells, the author concludes that the condition must be an active secretion on the part of these cells.

The final concentration of urea is due to the above mentioned secretion by the convoluted tubule and to the absorption of water from the other parts of the tubule.

NOGUCHI, H., AND KLIGLER, I. J.: Immunology of the Peruvian Strains of *Leptospira Icteroides*. *Journal of Experimental Medicine*, February, 1921, xxxiii, No. 2, p. 253.

Pfeiffer reactions with the strains *Leptospira icteroides* isolated in Guayaquil and Merida were studied using the serum from ten yellow fever convalescent patients. Of these, 4 were from Piura, 4 from Payta and 1 from Morropon. All recent convalescents of from seven to thirty-six days gave positive Pfeiffer reactions whereas older cases, those of ten months, gave only partial reactions.

A study of the virulence of the Morropon strains was made using an emulsion of kidney made in saline with 1 gram (15.5 grains) kidney to 10 c. c. (2.71 fluidrams) saline. This virulence was found to be the same as the Guayaquil strains. A dose of 0.00001 c. c. of the emulsion was found to be the minimal lethal dose for the guinea pig. Anti-icteroides serum used after the inoculation of from 2,000 to 20,000 minimum lethal doses of infective material prevented the development of the infection, or a fatal outcome. The earlier the serum was used the less was required. During incubation from 0.0001 to 0.001 c. c. was sufficient; during the febrile stage from 0.01 to 0.1 c. c. (0.162 to 1.60 minims) could check the progress; where jaundice was present from 0.1 to 1 c. c. (1.60 to 16 minims) saved 3 out of 4 animals.

The authors recommend fresh rabbit serum for culture work with *Leptospira icteroides*.

H. M. FEINBLATT.

HAMILTON, H. W.: Powdered Litmus Milk. A Product of Constant Quality and Color Which Can Be Made In Any Laboratory. *Journal of Bacteriology*, 1921, vi, No. 1, p. 43.

In the preparation of the indicator the dye should be a blue azolitmin, free from red dye. Litmus cubes, for this purpose, are extracted with boiling distilled water. The clear solution is decanted off. The liquid is evaporated to a thin paste over a free flame and treated with an excess of glacial acetic acid. It is dried on a water bath. Ninety-five per cent of alcohol is added and the whole transferred to the filter. The filtrate is discarded, and the residue dis-

solved in water, and dried first over a free flame, then on the water bath. A satisfactory powder may be obtained by extracting cubes with hot water, and evaporating filtering to dryness. The residue is treated with 95 per cent of alcohol over night. The next morning the alcohol is decanted off, and the residue dried on the water bath.

From a baker's supply company, or a grocer, skimmed milk powder can be obtained. The litmus powder is mixed with the milk powder. In the case of the litmus powder prepared by the first method (or purchased azolitmin powder) one part of the dye is added to 52.7 parts of skimmed milk powder; in the second one part of the dye powder is added to 49.6 per cent parts of milk powder.

"The resulting mixture is dissolved in distilled water in the proportion of one part of the litmus milk powder to 9.5 parts of water." All media are sterilized perfectly in the Arnold Sterilizer.

Bacterium coli, *Bacillus Welchii*, *Bacterium acidilactici*, *Bacterium Alaligenes*, *Pseudomonas fluorescens*, *Bacillus mesentericus vulgatus*, *Staphylococcus pyogenes albus*, and *Proteus vulgaris* cultures grew well and gave typical reactions in the normal time.

MEANS, J. H., BOCK, A. V., AND WOODWELL, M. N.: **Studies of the Acid-base Equilibrium in Disease from the Point of View of Blood Cases.** *Journal of Experimental Medicine*, February, 1921, xxxiii, No. 2, p. 201.

Diagrams are used for the interpretation of acid-base equilibrium problems which show the presence or absence of non-volatile acid in the blood or of actual changes in the blood reaction.

Dissociation curves thus plotted give the following information: The abscissa in the diagrams indicates the CO_2 tension of the blood and therefore the concentration of the dissolved CO_2 . This forms the numerator of the fraction in L. J. Henderson's formula $+H = K \frac{(\text{BHCO}_3)}{(\text{H}_2\text{CO}_3)}$ in which $+H$ represents the H ion concentration, H_2CO_3 the concentration of free CO_2 and BHCO_3 the concentration of the bicarbonates and K a constant. The fraction ordinarily has the value of approximately 1/20. The ordinates of the dissociation curve are indices of the denominator of the fraction or the BHCO_3 concentration.

If hydrogen ion concentration is dependent upon the ratio of the fraction above given multiplied by a constant, then for any given point in the diagram a series of radii drawn through the zero point will indicate the extent of the H ion concentration. Also the position of the A-point in any arterial blood will show the same reaction. (This A-point represents the CO_2 tension in arterial blood.)

As long as the value of the fraction remains constant, though its actual terms vary in concentration the A-point will always fall on the same straight line drawn through the zero point. A line OOC representing the normal H ion concentration was drawn which runs through the A-points of a number of normal bloods. In pathological bloods, if the A-points fall to the left of the line a more alkaline blood than normal is indicated; if to the right a less alkaline blood than normal is indicated.

The CO_2 diagram thus informs first of the presence or absence of acidosis in the sense of changed blood reaction, and, second of the presence or absence of non-volatile acid in the blood. The latter is shown by the level of the dissociation curve. The effect of added acid is to diminish its available alkali which fact would mean a downward move of the dissociation curve, for the ordinate represents the concentration of the blood bicarbonate. The position of the A-point and the level of the curve reveals the two main facts of acidosis.

Blood was drawn by venepuncture and the CO_2 content was determined by gas analysis. Three points in the dissociation curve were plotted. The ordinates represent the CO_2 volumes per cent found, the abscissa represent the CO_2 tension in mm. mercury. These points determined, the most probable curve was drawn through them. The CO_2 concentration was determined by drawing arterial blood under oil and using the Henderson apparatus. The A-point CO_2 tension is, in those free of pulmonary disturbances, essentially the same as that of alveolar air and was so computed. The A-point was marked by the intersection of the CO_2 concentration or rather its appropriate abscissa, or by determining the arterial CO_2 tension and finding the point where its ordinate intersects the curve.

In all 15 curves were plotted, 2 in normal individuals, 3 in diabetics with acidosis, 2 in nephritics with acidosis, 3 in cases of pneumonia, 2 cases with anemia, 1 with cerebral hemorrhage, 1 with myeloid leukemia, and 1 suffering with idiopathic tetany.

Curves on the diabetic showed a condition of marked but com-

pensated acidosis: that is, great reduction in available alkali but perfect pulmonary response with maintenance or normal blood reaction, and recovery therefrom.

Curves from the nephritic were even more striking, the patient passing from a stage of definite decompensating acidosis to good compensation in a very short time following the use of alkali.

In the 3 pneumonia cases, 2 showed normal curves signifying a normal alkali reserve and the absence of abnormal acid. In both the A-point was displaced in the acid direction. The third pneumonia case showed a higher level than normal and also showed the A-point to the right. The diagram suggests a condition of carbonic acidosis due to insufficient ventilation.

Here is a condition of altered H ion concentration in the acid direction with a normal buffer state of the blood.

Two of the 3 anemía cases showed a higher level of curve than normal and A-points to the right of the line.

The nephritic with a decompensated acidosis and a very low alkali was rapidly brought to a condition of decompensated alkalosis with a high blood alkali by the therapeutic use of sodium bicarbonate.

It is suggested that the therapeutic use of alkali in acidosis is probably indicated only in the decompensated variety, and should be carefully controlled to avoid producing alkalosis.

H. M. FEINBLATT.

SECTION ON PEDIATRICS

MARFAN, A. B.: **Periodic (or Cyclic) Vomiting with Acetonemia.** *Archives de Medicine des Enfants*, Paris, January and February, 1921, xxiv, pp. 5-28 and 73-102.

Commencing with an historical account of this condition which consists in attacks of vomiting associated with acetonemia that recur at irregular intervals in childhood, Marfan gives a most complete description of it. The ailment usually makes its first appearance between the ages of one and six years, but may occur within the earliest months of life. It rarely starts after the sixth year and is practically limited to children fed on cow's milk. Vomiting may be preceded by twenty-four hours of malaise. The odor of acetone may often be detected on the breath before the actual onset of vomiting. Vomiting, however, may occur without any warning symptoms. Improvement is usually noted after twenty-four hours of vomiting and the attack is over in from two to four days, although cases lasting 14 days have been reported.

The acetone fragrance of the breath frequently disappears with the vomiting but may occasionally persist for two or three days or even longer. Acetone is always present in the urine during attacks and may continue as long as two months. The tongue becomes dry. The abdomen is usually negative to palpation and inspection. Abdominal pain is usually absent but in rare instances appendicitis may be simulated, although abdominal tenderness is lacking. The temperature is usually normal, an increase of one or two degrees being the exception. Although the child may be prostrated, the intellect remains clear. The respirations are deep and irregular. There is no cyanosis. Syncope is rare. Emaciation results if the attack

persists for three or four days. The condition is relatively benign. Only about 15 deaths, unusually in infants under six months, have been reported. Autopsies reveal little more than fatty degeneration, round cell infiltration, and small hemorrhages of the liver. The kidneys may be large with microscopical lesions of congestion, hemorrhagic or degenerative nephritis. Occasionally there is hemorrhagic infiltration of the suprarenals. One autopsy is quoted in full.

The interval between attacks is irregular and may extend over a period of weeks or months. Occasionally there are no recurrences. After the age of twelve years the condition usually disappears entirely. The complete case-history of a boy three years of age is given.

There are several causes which may precipitate a recurrence such as acute fevers, eruption of a tooth, difficult lesions and calomel. Frequently the children who suffer from periodic vomiting are delicate and nervous but healthy children are far from immune. Adults who have had this condition in childhood are usually normal. Migraine is not a common sequelæ. The urine during the vomiting attack is very acid, contains acetone, almost always diacetic acid, and sometimes oxybutyric acid. Lieben's, Denigès' and Legals methods for the detection of acetone and Gerhardt's ferric chlorid test for diacetic acid are described in detail. Marfan especially recommends the last. The total urinary nitrogen, the ammonia nitrogen and the amino-acid nitrogen are increased. There is no sugar in the urine. A slight transitory albuminuria at the height of the attack has occasionally been noted. The alkalinity of the blood is reduced and the sodium bicarbonate raised during attacks. An increase in ketone bodies has been found in the blood of a fatal case. The blood sugar percentage is inconstant. There is a slight leukopenia with lymphocytic increase. The spinal fluid contains acetone. Patients may vomit "coffee-ground" material, especially in very severe cases. Jaundice has occasionally followed an attack of vomiting. Excess salivation, mild headache, convulsions especially in severe cases, urticaria, and morbilliform erythema, may occasionally be present. Infrequently the condition may resemble meningitis and poliomyelitis and the power of speech and walking may be temporarily lost. In other patients attacks of asthma may alternate with the periods of vomiting.

As "equivalents" of these vomiting attacks, Marfan mentions transient fever, coma-like sleep lasting two days, convulsions, tachy-

cardia and dyspnea all of which may be accompanied by acetoneuria.

The three acetone bodies, B-oxybutyric acid, diacetic acid and acetone are regarded as normal though transitory steps in the metabolism of fat and to a less extent of protein. In health, these bodies are produced in very small amounts and may be detected in normal blood.

Except for from 3 to 8 cgs. (.4629 to 1.2344 grains) of acetone which are daily exhaled and from 3 to 8 cgs. (.4629 to 1.2344 grains) of combined acetone and diacetic acid eliminated in the urine, the ketone bodies are rapidly transformed to water and carbon dioxide. Normal urine contains no B-oxybutyric acid. The liver, possibly through its ferments, is the only organ apparently capable of forming ketone bodies. They are destroyed by several organs and tissues but especially by the liver. In acetonemia, there is an excess of acetone in the breath, urine and blood. In severe cases B-oxybutyric acid appears in the urine and acidosis may develop. The urine contains an excess of ammonia and amino-acids and a correspondingly smaller amount of urea. Acetonemia occurs in diabetes mellitus, periodic vomiting in children, pernicious vomiting of pregnancy, Asiatic cholera, severe anemia, coma following cancer, salicylate poisoning, tetany, certain diseases of the liver, appendicitis and salpingitis. It may follow chloroform anaesthesia and be produced in predisposed individuals by carbohydrate starvation. It also may occur in individuals on a normal diet containing a sufficient amount of carbohydrate. M. L. Ambard has advanced the hypothesis that the tissues of a diabetic patient utilize sugar badly and require a compensatory high blood sugar. When this is reduced, a state of carbohydrate starvation results and acetonemia follows. Diabetic coma is not due to the excess of ketones or abnormal acids for their injection into animals does not cause coma. It may be due to some unknown poison produced coincidentally with the excess of ketones. In some individuals who are probably predisposed and especially in children, acetonemia is produced by a number of febrile diseases such as measles, scarlet fever, meningitis, etc. It has been observed in animals whose parathyroid glands have been removed.

In periodic vomiting the excess of acetone is not the result of the starvation caused by the vomiting as the excess of acetone may precede the nausea. The vomiting may increase the amount of acetone, however. Neither is the vomiting due to the excess of ammonia

for the injection of acetone into animals does not produce nausea. The vomiting and excess of acetone may be due to the same cause. The older clinicians stated that the liver was involved in periodic vomiting because it was enlarged and because of the presense of jaundice and bile-stained vomitus. Furthermore the liver is the only ketogenic organ and there is either a primary disturbance of liver function so that ketones are formed in excess or of fat and protein metabolism so that the liver has an abnormal amount of fatty and amino-acids to handle. There are three theories in regard to the pathogenesis of periodic vomiting: (1) there is a primary disturbance of liver function which gives rise to an excess of ketones and also to a substance which causes vomiting; (2) there is a primary disturbance of fat and protein metabolism resulting in such an excess of ketones that the liver cannot destroy them and which give rise also to a vomiting substance; and (3) an initial disturbance of metabolism gives rise to a poison which causes vomiting and also liberates an excess of fatty acids. Chloroform is an example of such a poison but although there are many similar symptoms in chloroform poisoning and periodic vomiting, the presence of narcosis spoils the analogy.

In addition to the etiological factors previously mentioned such as heredity, age and acute infections, a diet high in fats appears to induce periodic vomiting in susceptible children. There are many theories in regard to the etiology, none of which are plausible, as follows: (1) anaphylaxis—although the factors precipitating attacks are too varied to sustain this hypothesis; (2) gastro-intestinal affection; (3) superarenal insufficiency; (4) insufficient assimilation of carbohydrates; (5) hysterical manifestation; (6) alimentary poisoning; (7) hereditary syphilis; and (8) manifestation of chronic appendicitis, although periodic vomiting has been noted in children whose appendices have been removed. The three important diagnostic features are vomiting, acetone in the urine and breath, and a history of recurring attacks. However, a diagnosis by exclusion should always be made. The onset of both epidemic and tuberculous meningitis, acute appendicitis, acute febrile diseases, intestinal obstruction, and the various diarrheas of infancy and migraine may simulate periodic vomiting. They may also occur coincidently so that a clinician should always use great care in ruling them out. The presence of a stiff neck, a Kernig sign and the results of a lumbar puncture diag-

nosticate meningitis. In acute appendicitis, the temperature is usually persistently high, there is leukocytosis, the presence of acetone is inconstant, there is tenderness over McBurney's point, a mass in the appendix region may be felt by rectum, and vomiting and nausea are less pronounced than in periodic vomiting. Acute peritonitis presents a picture somewhat similar to that of acute appendicitis. With migrain, the headache precedes the vomiting and is the predominant symptom. Acetonemia is inconstant and usually slight.

Treatment.—If the patient is over 6 months of age and breast-fed, he should be carefully weaned to cereals and a low fat mixture; if fed on cows' milk, cereals and skimmed milk should be substituted. If the patient is on a general diet, the food should consist of bread, roast or grilled meat, cereals, green vegetables, cooked or raw fruit, only one egg a day, including the eggs used in cooking, cream gruyere or Holland cheese, or small amounts of cocoa, and no tea or coffee. Beverages should be limited to water and malt beer. The following articles should be omitted from the diet; sardines in oil, pate' de foie gras, canned meats (except a small amount of ham), brains, veal, fried food and sauces, cakes made of butter, eggs, and cream and hors d'oeuvre.

A nursing subject to periodic vomiting should take from 0.1 to 0.15 gram (1.543 to 2.315 grains) of sodium bicarbonate twice a day, a few minutes before a meal for about ten days each month. A child of six years should take the following powder in an ounce of warm water twice a day, from 20 to 30 minutes before each meal, for ten consecutive days each month:

Sodii sulphatis	0.3 gram (4.63 grains)
Sodii bicarbonatis	0.2 gram (3.086 grains)

An older child who is nervous or constipated should take warm 50 c. c. (2 ounces) of the following prescription twice a day, from 20 to 30 minutes before a meal, once a month:

Sodii sulphatis	8.0 grams (123.46 grains)
Sodii phosphatis	6.0 grams (92.60 grains)
Sodii bicarbonatis	4.0 grams (61.73 grains)
Sodii bromidi	3.0 grams (46.30 grains)
Aquæ dist. q. s. a. d.	1000 cc. (33.81 ounces)

Mineral waters such as Vichy and sending the patient to the resort at Vichy except in July and August are beneficial.

During the acute attack the patient should take from 3 to 4 teaspoonfuls of ice-cold 20 per cent sugar solution, each dose containing from 0.2 to 0.5 grams (3.086 to 77.16 grains) of sodium bicarbonate according to age, every half hour in spite of vomiting. If the patient is breast-fed he should be nursed 4 or 5 times daily and given sugar solution in the interval. Marfan advised the use of high hot (40° to 45° C. [104° to 113° F.]) rectal irrigations of from 150 to 300 c. c. (5.07 to 10.14 fluidounces) of a 1 to 2 per cent sodium bicarbonate solution twice a day if acute appendicitis is definitely eliminated. Many attacks are cured in a few hours by these measures, but if they persist, from 25 to 100 c. c. (6.76 fluidrams to 3.38 fluidounces) of physiological saline or glucose solution should be given subcutaneously. If the case is in extremis, from 25 to 200 c. c. of a 4 to 5 per cent sodium bicarbonate solution should be injected intravenously. If no veins are visible, from 50 to 400 c. c. of a 2 per cent sodium bicarbonate solution may be carefully injected subcutaneously.

W. C. DAVISON.

BOUQUIER: *An American Colony of War Orphans.* *Archives de médecine des Enfants*, Paris, February, 1921, xxiv, 103-112.

The author was medical advisor to a home founded in January, 1917, in Boulogne for about 45 war orphans from three to seven years of age. At first there were several epidemics of infectious disease but as soon as a twenty-one day quarantine was established for all newcomers, the health of the inmates was excellent. The daily régime is described. From June to November, 1917, selected cases slept out of doors in tents. All of the children had to sleep for one hour after lunch, out of doors, if the weather permitted. Elementary physical and mental education was instituted. The children spent the summer of 1918 at the seashore at Deauville. Here active open air gymnastics and sea-bathing rapidly increased the height and chest circumference and added about two pounds of muscles to the weight of each inmate. On their arrival at the orphanage more than half of the children were below the average weight for their ages but

in December, 1918, when the colony went to Paris, only 10 percent were below par.

W. C. DAVISON.

FRANTZ, M. H.: **Hyperthyroidism in a Child.** *New York Medical Journal*, 1921, cxiii, No. 7, p. 275.

The ancient Romans were aware of the fact that a slave suffering from hyperthyroidism was feeble. In 1780 Flajani noted that exophthalmos was one of its symptoms. Perry, in 1786, Graves in 1835, and Basedow, at last describing the condition in 1843, fully appreciated the relationship of the two conditions. Crotti classifies the symptoms of hyperthyroidism in regard to age, and finds that its occurrence in infancy is rare. W. H. Lewis gives one case of infantile operative cases to three hundred of adult.

Falélines, Walburton, Tedeschi, Dourdonfi and Bienfait found symptoms of hyperthyroidism after sectioning the reaction bodies in the animal and considered the condition as of bulbar origin. Charcot, Trousseau of the French, Gerhardt, Buscheau, Wickfield and Sattler of the German school, considered it a neurosis of the entire vegetable nervous systems. Nutkine and Blum thought it to be due to insufficient depoisoning of the organism by the thyroid from functional insufficiency. Gauthier thought the thyrotoxic syndrome, of thyroid origin; Mannheim of central origin. Friedreich thought enlargement of the coronary arteries of the heart was the cause. Hart and Bircher considered a thymic origin; Klose, Lampe and Liesegang thought of dysthyroidism; Basedow thought the disease was a poisoning of the blood by thyroid products; and Crile thought that it was a philogenic disease. Moebius' idea of etiology is the one most generally accepted. He thinks that hypersecretion poisons the organism.

Pathology shows a hyperplasia. The symptoms in the child are irritability, nervousness and tachycardia. The patient is rarely conscious of palpitation, and exophthalmos is rarely marked. The ocular symptoms are said to be absent. There are moderate tremors and vascular symptoms, but muscular asthenia of the adult is absent in the child. In clinical diagnosis the Goetsch test shows an increased constitutional sensitiveness to adrenalin.

The treatment is medicinal, surgical and mental. Belladonna has proved most beneficial. Ligation of both superior poles of the thyroid gland is considered curative. In advanced condition thyroidectomy is necessary. Psychoanalysis and physiotherapy may help some cases.

In the author's case hyperthyroidism had set in at the age of one and a half years. The mother was suffering from hyperthyroidism. The child came under observation when nine years old. It twitched its hands, moved its eyes to and fro, went to sleep very slowly. It was easily excited, would fly into a rage at slight provocation. For the last three years palpitation had been noticed and the child tired easily when climbing stairs. The swelling of the neck was noticed by its mother at the age of one and one half years. The child had whooping cough, measles, scarlet fever, otitis media. A tonsillectomy had been performed at the age of six. There was mental precocity. The patient's parents came from a goitrous district in Baden.

HUNT, E. L.: **Syphilis of the Nervous System in Children.** *American Journal of Syphilis*, 1921, v, No. 2, p. 259.

Congenital and acquired syphilis do not very widely differ. The tissue involvement in the congenital cases is more general and more complex than in the acquired, more tissues are involved and the involvement is more complete and complicated. The nervous system is therefore earlier and more frequently involved; so is the brain. Paralysis, mental symptoms, optic atrophy are usual in congenital syphilis, whereas ataxia is comparatively rare. The nervous symptoms may be of almost any type, but are less apt to be of meningeal origin than is the case in the acquired form. The pathological changes are practically the same in congenital and acquired syphilis, but in the former there is apt to be a combination of lesions. In both arteritis meningitis, brain cord and nerve involvement occur, but they are more differentiated in the acquired type. The nervous system becomes involved at an earlier date in the congenital cases. The stigmata are frequent and quite characteristic. These are Hutchinson teeth, saddle nose, striae about the mouth, prominent veins, hydrocephalic head and scaphoid scapulae. Hutchinson teeth are not as common as has been taught. As congenital syphilis rarely reaches

the adult stage, they are rarely seen in the adult. Usually only a few are involved, sometimes only one, and the upper oftener than the lower. Reflexes may be exaggerated, the sphincter control may be deficient. Mental defectiveness and deficiency are common in syphilitic children. Backward, defective, imbecile and even idiotic cases are often the result of syphilis. Restlessness, insomnia, enuresis, failure in school, childishness, defectiveness and anentia may be the signs. The spinal fluid examination is most important. The tests are the Wassermann reaction, the increased cell count, the excess of globulin, and, most significant of all, the changes from the normal curve as evidenced by the colloidal gold solution. In well-developed cases of juvenile tabes and paresis the reaction of the gold-sol test will show characteristic curves. The involvement of the nervous system is an early feature. The author advises lumbar puncture in every suspected or hereditary case, and in every one characterized by nervousness. The blood Wassermann varies, and does not always give a reaction as early as the spinal fluid test. Where syphilis in the ancestry is admitted a negative Wassermann means very little, especially where that of the spinal fluid is positive. The well-known clinical signs are changes in the reflexes, motor and sensory changes, abnormalities of gait, tremors; they are multitudinous and protein. Syphilis may simulate any condition.

Paresis is the most common form of syphilis in children. Convulsions occurring late in the adult, occur early in the juvenile type. The average age at which it can be made is twelve. Some cases have been reported at six, seven and three. There are apt to be complications. Emaciation is severe in juvenile paresis, while there is gain of weight in the adult paretic. Paresis is more frequent than tabes in the child. The average age of juvenile tabes is fifteen. Some have been cited in the twenties and early thirties. Pure spinal syphilis is almost unknown in congenital syphilis. Probably the fetal brain tissue is more susceptible to the specific virus than is that of the spinal cord. "Epileptic seizures" are common, but are really convulsions. Every epileptic case should have a cerebrospinal analysis. Diabetes insipidus is a characteristic symptom of congenital syphilis, the lesion being in the pituitary body.

Hydrocephalus is a frequent symptom. It may occur at birth or after a few years but usually in the first few months. When syphilitic in origin it is usually caused by an arteritis and is the result of

an accumulation of fluid in the ventricles. In some cases it may be the result of meningitis. It may develop without symptoms, or be ushered in by irritability, insomnia, crying and restlessness.

In congenital syphilis the cranial nerve most frequently involved is the eighth and it is most susceptible to toxemia. The pathological lesion is either neuritis or an exudate around the nerve. "In all instances where nervous phenomena manifest themselves in children, suspect syphilis". A lumbar puncture is indicated and the deduction of the gold-sol test. Children of syphilitic parents should frequently be tested by the Wassermann and gold-sol. They are more reliable in congenital than in the acquired form.

The prognosis in congenital syphilis is worse than in the acquired on account of the complex involvement and defective development and malformation of the nervous tissue.

Syphilis develops at one, seven, fourteen, sixteen, any time, it being the most frequent in the twelfth year. One of the known causes of precipitate development is infectious disease, measles, etc.

The author's conclusions are that the condition is common, that the nervous system may be involved early, a lumbar puncture may be of great help and should be a routine part of the examination of every nervous child, the blood and spinal fluid of nervous children or parents, whose parents or children are syphilitic, necessitates an examination. Furthermore he has found that treatment is not promising and that stigmata are not necessary or even very frequent.

EVANS, E. L.: Functional Results of Successfully Reduced Congenital Dislocation of the Hip. *Proceedings of the Royal Society of Medicine, Section on Surgery*, January, 1921, xiv, No. 3, p. 9.

Before the manipulative period, continuous extensions, with or without abduction, never led to a successful reduction. If the head lay over the acetabulum, the head was kept off of the acetabulum floor by infolded capsule, and progressive displacement occurred when extension ceased. Nowadays such cases are not often met with. Nearly 50 years ago, W. Adams carried on the treatment described by Buckmaster Brown, upon a doctor's daughter. It lasted several years. Skiagrams taken in 1907, 1909, 1913, and in 1920, show the femoral head upon the dorsum ilii.

It would be impossible to say by clinical or x-ray examination that any treatment had been carried out. In 1907 the acetabulum looked shallow, with half the femoral head outside the acetabulum, unsupported by any roof. In 1909, 1913, and 1920 there were progressive osteo-arthritic changes. Baker's cyst shows the size of a tangerine. The dislocated hip is functionally better than the undislocated.

Mobility is not a criterion for the walking and standing functions.

Then came the area of Hoffa-Lorenz method of treatment by open exposure and by shaping the femoral head and acetabulum before reduction. The author thinks such results should be considered as nearthroses rather than as successful reductions. The results did not last over a period of many years. There are open operations of arthrotomy performed with a view to dilate a constricted isthmus and so to facilitate reduction by manipulation. This the author has not tried. The method of manipulation has been carried on by Paci, Lorenz, and others during the last years of the last century. In England, this treatment was first used in 1903.

In some cases the function will be perfect, although the x-ray shows deformity, either vasa deformity of the neck or absorption of the head and neck. But the author fears that this functional ability may last only up to adolescence.

COMBY, J.: **Congenital Stenosis of the Duodenum, General Review.** *Archives de Medicine des Enfants*, Paris, March, 1921, xxiv, 175-180.

E. Cautley's article on this subject in the *British Journal of Children's Diseases* of April-June, 1919, is the basis of this review. Among a total of 92 cases collected from the literature and analyzed by Sprigg, the stenosis was in the vicinity of the Ampule of Vater in 67, at the duodenojejunal junction in 15, and unclassified in 10. In the majority of instances of complete obstruction, the upper and lower segments end in culdesacs which are united by a short cord. In the cases of simple stenosis, the narrowed portion of the intestine varies in length and degree of constriction. This condition is probably due to an arrest in embryonic development although intrauterine disease may account for some instances. Anomalies of the

bile-duct and other viscera are frequently associated with duodenal stenosis. Vomiting, rapid emaciation, and constipation are the salient features. The vomitus is bile-stained in 90 per cent of the cases and frequently contains blood. If the obstruction is not complete, the patient may live some months. In these instances, the stomach and first part of the duodenum hypertrophy and peristaltic waves are visible. The picture is often indistinguishable from that of pyloric stenosis. Early surgical intervention is the patient's only chance.

W. C. DAVISON.

BASHINSKI, B.: **Cardiac Conditions in Children; Their Significance and Prognosis.** *Journal of the Medical Association of Georgia*, January, 1921, p. 246.

Congenital heart disease may be called a common condition. The heart disease of infancy and childhood can be divided into functional or organic, acute or chronic, congenital or acquired forms. Among the congenital we find those showing murmurs but no enlargement, no cyanosis, and the typical one showing cyanosis, a thrill, enlargement, and finally a murmur. Functional and organic disorders shade gradually. A wrecked heart may be capable of complete recovery and restoration to the normal. Again a heart affected by functional disturbance may be associated with poor health from various causes or it may be a constitutional peculiarity.

Bradycardia is often an individual peculiarity and during convalescence from the acute disease it is frequently found, and then usually has a favorable prognosis. Tachycardia occurs in many diseases. It is common in children, especially in those of nervous excitability.

Functional murmurs are often found, especially during the infectious diseases, disappearing during convalescence or soon after, being due to the myocardial degeneration. Among the most important cause is rheumatism; next in importance are influenza and diphtheria. These are usually bred in the pulmonary and mitral areas.

The author suggests open-air life and avoidance of over-heating, over-dressing, exposure to varying temperature, fried foods, damp dwellings, excess of sweets, tea, and coffee.

ALLEN, R. C.: **Complete Heart-block in a Case of Diphtheria.** *British Medical Journal*, February 19, 1921, No. 3133, p. 267.

A girl, 17 years old, was admitted to the hospital on Sept. 1. She was taken ill on Aug. 29 with sore throat and was treated with anti-toxin 4,000 and 2,000 units. The temperature was 102.6° F. (39.5° C.), respiration 28, pulse 120. The throat was swabbed every two hours. The face was flushed, there was no cardiac dilatation and the heart was regular. Brandy, 1/2 oz. (15 c. c.) was given every four hours. The patient improved rapidly and was feeling quite well on Sept. 3. The temperature then was 99° F. (37.5° C.), respiration 20, pulse 96. Then brandy was stopped. The next day the patient suddenly had a "convulsion", marked cyanosis, the pulse became imperceptible, temperature subnormal. The patient breathed quietly, respiration 26, slight cyanosis, pulse 26, temperature 96.6° F. (36.25° C.). There was no cardiac dilatation; the ventricles could be heard beating 26 per minute, whilst over the auricle could be heard muffled sounds—52 per minute. Liquid strychnin, minims IV (0.24 c. c.) was ordered every four hours, and brandy 1/2 oz., oxygen, 5 minutes, every quarter of an hour. The next day there was another slight convulsion. The pulse then rose to 56, temperature 97° F. (36.25° C.), respiration 18. The oxygen was continued and 1 c. c. (16 minims) of pituitrin administered subcutaneously. Incontinence of urine followed the next day, and more pituitrin was given. The following day the patient vomited, and had another convulsion. Temperature was 96.8° F. (35.75° C.), respiration 16, pulse imperceptible, but the ventricle could be heard 22 per minute. Acute pain over the cardiac region set in. The urine showed a white cloud of albumin, during the entire illness. The patient died. Myocardial poisoning must be accepted.

MORQUIO, L.: **Two Fatal Cases of Chorea.** *Archivos Espanoles de Pediatria*, February, 1921.

The first case was in a girl of fourteen years without any preceding history of infection or illness: the second was in a girl of six years originating in an attack of acute articular rheumatism, untreated, resulting in a mitral endocarditis. Both were characterized

by violence and persistence of movements which produced a complicating insomnia. There was also a steadily increasing temperature up to the time of death.

Treatment was symptomatic and autopsy showed lesions of superficial and diffuse encephalitis, giving the impression that these cases were epidemic encephalitis with choreiform manifestations.

W. H. DONNELLY.

MONTENEGRO, J. V.: **Seaside Sanatoria in the Treatment of Tuberculosis in Children.** *Archives Espanoles de Pediatria*, February, 1921.

The conclusions given by the writer are:

(1) In latent tuberculosis, sanatorium life stimulates the vigor of the organism but does not produce specific defense against the disease.

(2) The general health may coincide with the increase or decrease in the valency of the reaction against tuberculosis.

(3) The diminution in reactions in latent tuberculosis with an improvement in the general health seems to be of favorable significance.

(4) In active tuberculosis improvement is accompanied by an increase in the value of the reactions. These cases constitute the most important indications for seaside sanatoria.

W. H. DONNELLY.

COMBY, J.: **Wilson's Disease. General Review.** *Archives de Medicine des Enfants*, Paris, Jan., 1921, xxiv, 50-56.

Comby summarizes Marie's and Canelli's articles on "progressive lenticular degeneration, a familial nervous disease associated with cirrhosis of the liver", described as an entity by Wilson in 1912. The case reports by other authors are enumerated. It is supposed to be due to toxins originating in the intestine and attacking almost simultaneously the liver and the brain. The pathogenesis is obscure. There is no relation to syphilis. Sex plays no rôle. Individuals from ten to eighteen years of age are affected. It is not hereditary

but familial. The disease usually begins with involuntary motor disturbances, especially of the extremities, and spreading to the trunk and head. The eye muscles are unaffected. There may be trembling choreiform or athetoid movements, tonic or clonic contractions and uncertainty in walking. Emotion and effort increase the disturbances. Contractions follow the rigidity and spasms. The movements disappear during sleep, although the contractures may persist. The face becomes mask-like, with the mouth open. Voluntary movements are weak, and sustained effort is impossible. There is no paralysis nor muscular atrophy, however sensory disturbances are lacking. The reflexes and electrical reactions are essentially normal. There may be dysphagia. Occasionally there are psychic disturbances such as euphoria, spasms of laughing, and diminution of mental activity. There are no signs of liver insufficiency. The cirrhosis gives no symptoms. The condition is progressive and is always fatal. In the acute form which is fatal within a year, emaciation is rapid and there is irregular fever. The chronic form, which has no appreciable remissions may last as long as seven years.

At autopsy, there is bilateral symmetrical degeneration of the globus pallidus and especially of the putamen which may result in the transformation of the lenticular nucleus into a cyst. The external medullary layer of the thalamus, the internal capsule and even the white substance of the frontal lobes, in rare instances, may show vacuoles. The lesions consist in the proliferation of neuroglia, followed by degeneration. There are no vascular changes, and no endarteritis. There appears to be no inflammatory vascular origin for this degeneration. Cirrhosis of the liver is a constant finding. The spleen is enlarged and its capsule thickened but the pulp and Malpighian bodies are unchanged. The other findings are essentially normal.

Tetany may be differentiated from Wilson's disease by the electrical reactions and Chvostek's and Trousseau's signs. Hysteria can be eliminated by the associated psychic and motor disturbances. The presence of paralysis diagnosticates juvenile general paralysis, and bulbar paralysis. Dissociated sclerosis is characterized by visual and sensory disturbances and nystagmus. Parkinson's disease may resemble Wilson's disease but is confined to older individuals. Pseudo-bulbar paralysis is often confused with Wilson's disease but may be differentiated by the exaggerated reflexes and paralysis. Vogt

and Oppenheim's syndrome in which the picture may be very similar to that in Wilson's disease, is congenital, hereditary and non-progressive. There have been several cases reported that resemble but are not identical with Wilson's disease. This disease illustrates the clinical symptoms which result from lesions in the lenticular nucleus.

W. C. DAVISON.

HART, E. B., STEENBOCK, H., AND ELLIS, R.: **Antiscorbutic Potency of Milk Powders.** *Journal of Biological Chemistry*, 1921, xlv, No. 2, p. 309.

Milk powders are being used in the home and hospital dietary more every day. The various methods of preparation of milk powders endeavor to avoid intensive or extensive changes in the constituents of the milk. It is of course essential to consider the lability of the antiscorbutic vitamin during the process of dessication. The methods usually employed are the Merrell-Soule or spray process, the California Central Creameries' method and the Just process. In the Californian method the milk is not condensed before being dried. The powder is cooled and removed a "few seconds after being dried". The Just process dries the milk on heated rolls.

The author experimented on guinea pigs with the various milk powders for determining the antiscorbutic power. The initial quantity of vitamin in the milk as influenced by feed varies. But it has been ascertained that by the Just process, less antiscorbutic vitamins are destroyed than by the spray methods. The milk powders manufactured by the spray methods are valuable in many ways, but cannot be used for sole infant feeding, unless antiscorbutic vitamin is added. The cows, the milk of which was used for the powder prepared by the Just method, were fed on rations rich in the antiscorbutic vitamin by selecting roots and tubers.

SECTION ON ROENTGENOLOGY AND ELECTRO- THERAPEUTICS

STROM, S.: **On Roentgen Diagnosis of Intracranial Classification.**
(Über die Röntgendiagnostik intrakranieller Verkalkungen). *Fortschritte auf dem Gebiete der Röntgenstrahlen*, 1921, xxvii, H. 6, p. 577.

Schüller, in 1912, has in a very extensive manner given directives for the local diagnosis of intracranial neoplasms, and Heuer and Dandy in 1916 have shown up the practical significance of indirect local diagnosis. In the indirect method of locating tumors, changes in the skull, such as localized destruction, local atrophy or hypertrophy of the bone over a tumor, and a localized dilation of the blood-vessels of the skull, mostly of the veins, and changes in the base of the skull, especially of the sella turcica, have been used in diagnosis. These changes may be a sign either of a characteristic destruction and changes of the sella or of atrophy from compression. In some cases this atrophy may show, in general, decalcification of the sella and may be of depression of the base of the sella in connection with roentgenologic symptoms of increased brain-pressure, such as general thinning of the skull, deepening of the fossæ digitata and widening of the sutures. In these cases the neoplasm is liable to be located in such a way as to cause hydrocephalus internus, mostly subtentorial, in the cerebellum, or pons, or the angle of the pons, or so as to compress the aqueductus Sylvii. In some cases compression atrophy is marked by changes in the clinoid process, for instance, in those tumors growing over the sella and in tumors of the median cerebral fossa. If they are located on one side of the sella a one-sided lateral lesion in the clinoid process is found. In tumors in the auditory organs a widening of the porus acusticus internus may be observed. Physiological calcification may occur in the pineal gland, in the choroid plexus, the falx cerebri

and the Pacchionic granulations. That of the pineal gland is the most common, according to Schüller. It seems that Heuer and Dandy found 17 of these cases in 100 of brain tumors right above the temporal bone. In autopsy examination this shadow was identified as the pineal gland. In one of their roentgenograms the sella showed a tumor of the hypophysis. Schüller reports a case where the calcification in the pineal gland lay some millimeters to the left of the median line. This patient had, two years previous, shown symptoms of a right-sided hemiplegia, and clinically there was suspicion of a tumor of the cerebrum.

The author gives the report of 5 of his own cases. One was a psammoma. These benign tumors are best known in pathologic anatomy. Fibroma with interspersed psammous nodules are usually small, up to almond size; they may be lobular or papillar, and show no tendency to grow. They arise from the basal periosteum and the dura at various points, being usually situated close to the skull, or in the interior, in the tentorium cerebelli. They often cause no symptoms. Schüller thinks they can be diagnosed on the basis of shape and localization, but the author has found no such cases in literature. The tumor, in the author's case of psammoma, was situated in the posterior part of the right temporal region, near the os parietale, in close proximity of the parieto-occipital region. It was lobular. Four years later this calcification gave the same radiogram.

Among the better known brain tumors of malignant character, the endothelioma are those most frequently containing calcium, and they have been called psammoendothelioma, and the sarcoma containing calcium are called psammosarcoma. They may grow to the size of a goose's egg, may be multiple, show symptoms of brain tumor and may penetrate the dura, skull or scalp. In the brain substance proper primary osteosarcoma may occur. Usually endothelioma and sarcoma arise from the dura, or from the blood-vessels of the brain, and then spread in the brain substance without being in contact with the skull or the meninges. In the dura there are often flat or sponge-shaped infiltrations. Sarcoma spreading in the brain substance are often round; endothelioma at convex points are lentil-shaped. Tumors of this kind in the hemispheres may grow to the size of a fist. The author had 2 such cases. There was a welt immediately back of the coronary suture, especially in the outer layer

of the skull. In the center of it the bone was thinned, suggesting the intrusion of the tumor into the bone. Below the welt were small dense areas. The tumor, at operation, was found to be growing from the dura into the bone. Three years later another swelling of the brain occurred, and when operated, a calcified tumor was seen, which probably had started from the dura mater and adhered to the brain substance where calcifications penetrated. After removing the sinus sagittalis and the right central brain-convolution the space was patched with gauze. The tumor seemed to have compressed the parietal lobe. It was an epithelioma with genuine bone growth. Epileptic seizures stopped.

Neoplasms of the hypophyseal duct are mostly pavement epithelioma. They often contain calcification and even bone-tissue interspersion, and may be suprasellar, may arise from the infundibulum or the insertion part of the hypophysis. Tumors of the sella turcica show characteristic changes according to their intra- or extra-sellar origin. They may be asymmetrical, and may grow far into the hemisphere, and towards the frontal cranial fossa as well as towards the base of the brain, also upward or backward. Erdheim saw a case of intra-sellar tumor, which started from the remnant of the hypophyseal duct. It was located in the ethmoid cavity, and had rendered the sella defective, but had not damaged the sella. Hypophyseal tumors never cause symptoms of acromegaly, but often of hypofunction, such as late development and other endocrine disturbances. They were found mostly in young persons. Several authors have reported such cases. The writer's case was that of a psammoma of the hypophyseal duct. The radiograms showed large intracranial calcifications, which in profile can be seen around the sella turcica in all directions. At some distance from the sella lighter spots are seen between the interspersed calcified areas. The tumor is of supra-sellar origin. The entrance to the sella is widened and the anterior clinoid process is bent upward, the dorsum sellae slants back.

Gliomata and cysts are the most common brain tumors in adults. According to pathological teaching they do not seem to tend toward calcification, but to hemorrhage, secondary softening and cystic formation. They grow cortical and sub-cortical, most usually in the hemisphere, cerebellum and pons. The characteristic roentgen finding is annular calcification. Their location seems to vary.

The author has found the description of solitary brain tubercle calcification. He had a case of brain tubercle calcification which was well demonstrated in the anterior cranial fossa. The skull showed no changes. It is necessary to diagnose calcification of intracranial aneurysm, as such cases should not be operated upon. In Groedel's case there was an entire destruction of the sella turcica and the ethmoid bone. Furthermore, there may be calcification of encephalitic foci, after trauma, hemorrhage or unknown causes.

FORSSELL, G.: A Few Notes on the Diagnosis and Differential Diagnosis of Tuberculosis in Bones and Joints. *Archives of Radiology and Electrotherapy*, 1921, xxv, No. 9, Whole No. 247, p. 257.

X-ray examination in cases of bone joint tuberculosis are usually not made to establish the pathologico-anatomical diagnosis of tuberculosis, but to establish as far as possible, the localization, extent and intensity of the existing change. But often the tuberculous nature can be established by the x-ray plate in cases which are otherwise clinically uncertain. The radiogram registers the changes in density. The essential condition for a tuberculous lesion of bone to be seen on the radiogram is the visible change in the normal percentage of mineral matter. This change has often not taken place in early tuberculosis. But often a second examination, made but little later, may show this change. Where there is considerable bone-atrophy, that is general reduction of mineral matter in bone, a still further reduction of lime, such as may occur from a necrotic focus, may not show up distinctly. In severe capsular tuberculosis, for instance, increased density of the bone, or a condensation of the soft parts, may be marked in the roentgenogram, especially if a reduction of the mineral matter in the bone has taken place.

In vitreous or fluffy atrophy, unusual in a tubercular joint, there is a thinned appearance of the cancellous tissue. The compact tissue appears in sharp contrast to the thin cancellous bone and the soft parts. It may occur in various forms of deranged nutrition in bony tissue. It is, however, the usual type presented by a reduction of lime-salts in the neighborhood of a tubercular joint. A spotty bone-atrophy may also occur in tuberculosis, but again is not diagnostic. In a picture of one of the author's cases

Ludloff's spot is clearly seen, and in lateral pictures of the knee it appears normally as a triangle of decreased density in the antero-posterior part of the condyles. It appears most distinctly in atrophy and often causes confusion with necrotic foci. There is no unevenness in the contour at the junction of the bony surface of the tibia with the articular cartilage. In the femur, on the median and posterior parts of the condylar surface, small intermissions are seen in the contour. The compact tissue is here destroyed by the tubercular process. There is a striking reduction of the mass of the articular cartilage, between the patella and the femur, and the femur and tibia. It is tuberculous arthritis with thickening and condensation of the capsule, reduction of the cartilages and erosion of the articular surface of the femur, and vitreous atrophy without increased density of the bones or osseous regeneration in spite of a two years' illness. In another case of vitreous atrophy there is also a typical destruction of the bone-structure within the whole of the median part of the bone. The cancellous structure is attenuated and the contour effaced. An indistinct and hazy appearance with small localized areas of increased density are seen. About these areas the structure appears fluffy and thin. A decalcification and an actual osseous destruction without defined cavity formation were diagnosed, and at operation caseous and granulated masses were found. The cartilages are not diminished. But granulations in the soft parts cause the light shadow in the deltoid ligament which is represented by a more condensed flaky and irregular mass.

In still another case of "vitreous foot" the tuberculous nature showed in the lack of any trace of reactive osseous regeneration, although the process had been going on for four and a half months. If not tuberculous it could have been only a malignant tumor. Vitreous decalcification is as a rule not accompanied by such a deficiency of lime salts in the surrounding bony parts in case of tumor. Another sign in favor of tuberculosis is the reduction in volume of the decalcified parts. Differential diagnosis on a radiogram of the two conditions is often difficult.

In one of the cases the x-ray picture was suggestive of traumatic osteitis or osteomyelitis, as the decalcification took place in the form of dispersed spotted areas. The possibility of a syphilitic process or an osteomyelitis of septic nature also had to be considered.

Tuberculosis was diagnosed because of the complete absence of new bone formation from the periosternum or any form of productive bone change in the neighborhood, and was verified at operation.

In a case of wrist tuberculosis the recognition of atrophy with coëxisting destruction is discussed. The volume of the bone in relation to the bone on the healthy side must be carefully studied. The cause of reduction must be traced to cartilage or to bone. A case of capsular tuberculosis of the knee shows the usual decalcification and a small necrotic focus in the tibial epiphysis with the usual appearance of a small isolated, tuberculous epiphyseal focus. In a small area the structure is entirely lacking. These foci have the typical appearance as if they were carved out from the cancellous tissue. The focus has on conservative treatment gradually disappeared from the radiogram. It is not always possible to determine radiographically, if a tuberculous process is in progression or retrogression, but the active forms of tuberculosis have been seen to have a blurred and indistinct outline, while the more benign, slowly progressing or retrogressing foci are better limited and surrounded by more distinct detail of the bone structure and the clearing of the spotty detritus. Later on the destroyed surfaces build up new compact tissue. Error may in beginning restitution arise from the foci seeming bigger.

In differentiation from gout it can be mentioned that the boundary line of the foci is not usually blurred and that the changes in the bone exterior to the seat of disease do not usually occur. Syphilitic processes can simulate almost any change on the radiogram. Gross destruction without osseous hyperplasia in nontreated syphilis is however unusual. In spondylitis diagnosis may be facilitated by the clubbing together of the proximal costal extremities. This change of position of the ribs may be easier to differentiate than the compression of the vertebræ.

Oxygen-insufflation in the joints will render the cartilaginous and meniscus contours, as well as the inner capsular surface. It may be that this method will also set forth the changes in the soft parts of the joints. In x-ray diagnosis the older anatomical pathological findings should be born in mind. Tuberculous periostitis in its earlier stages may not show in the radiogram, until the disease has produced sufficient bony erosion to give the necessary contrast picture.

Köhler's disease in the x-ray is distinguished by a displacement of the mineral matter in the scaphoid to the center of the bone, in one case, then producing a lamellar formation, composed of smaller laminae, or islands of lime-salts. The cartilage is preserved; in "Schlotter's disease" it shows cleavage of the epiphyseal nucleus, and a spotty or "fluffy" picture of the nucleus fragments. The rest of the joint appears normal. Ricket's and Barlow's disease present, as a rule, unmistakable x-ray pictures. The typical x-ray picture of gummatous osteoperiostitis has thick dense periosteal bone formation, with gummatous bone destruction. In diffuse cancer metastases show great, diffuse and irregular expansion of the decalcified area, condensation of the bone between the areas of destruction, irregularly and spottily distributed.

For x-ray plate analysis good knowledge of x-ray anatomy and pathology is indispensable.

PARRISIUS, W.: **A Warning of Overdose of X-ray in Cases of Myelonic Leukemia** (Wurnung vor Ueber dosierung bei Bestrahlung von Faellen von myeloischer leukaemie). *Strahlentherapie*, February, 1921, xii, H. 1

The author reports on 2 cases and shows the danger of overdoses of x-ray, that is to continue radiation till the blood-picture returns almost to normal. These two cases were fatal, and so was a third. In one of them a salvarsan treatment was being carried on simultaneously and therefore, the proof for the overdose being fatal, it was not without dispute. The patients had not received more than what was given at the clinic in all cases, but they were more susceptible. Patients with myelotic leukemia in a fair general condition were treated three times with one half erythema dosis, screened by 3 mm. aluminum.

Weakness and cardiac insufficiency rapidly set in after irradiation. There was a sudden decrease of leukocytes, and shrinking of the spleen. In one case edema of the lower extremities occurred. Many other patients were greatly benefitted by the same doses. It is, therefore, advisable to start with very small doses, and to wait how the patient will react. It will then be possible to find what doses will be tolerated and to gradually give larger doses.

The indication for roentgen treatment in these cases is the gener-

al condition, the number of leukocytes and the blood picture. It is not necessary to prolong treatment until the spleen has gotten entirely back to normal. Not the spleen, nor leukemia is being treated but the patient who has leukemia.

VOGT, E.: Roentgen Examination of the New Born (Roentgenuntersuchungen der innern Organe des Neugeborenen). *Fortschritte auf dem Gebiete der Roentgenstrahlen*, 1921, xxviii, H. 1, p. 49.

The radiograms of the new-born are especially difficult on account of the rapid movements of the diaphragm, the pulsation of the heart, thorax and large blood-vessels and the movements of the child in general.

These examinations so far, have revealed that the thorax is barrel-shaped, if the child has been breathing, the ribs flat, the thoracic aperture is at a right angle with the spine. The sternum is high and the epigastric angle obtuse. The trunk of the child is egg-shaped, the point being top-most. The infant's trunk on the contrary is cylindrical.

Fetal lung atelectasis occurs slowly and by degrees. The lower parts of the lungs are the first to be ventilated; they become lighter on the roentgenogram, till at last all bronchials of the lung apex are visible. This process is more rapid in the maturer child. This finding answers those of autopsies in pathologic anatomy, for in prematurely born children the lungs are insufficiently expanded. The author considers this a reason for the frequency of lung disease in such children.

Respiration is almost entirely carried on by the diaphragm; costal respiration is very slight, excepting on exertion. The upper border of the fourth and the lower border of the seventh ribs represent the excursion latitude of diaphragmatic movements.

The heart is in a slanting position, its axis and that of the body being at almost a right angle. Later the unfolding of the lung, the descent of the diaphragm and the change of the shape of the thorax, bring the heart into the position typical for the infant. The apex strikes the thorax from 1 to 2 cm. lateral of the median line, and in the fourth intercostal space. The heart is almost spherical, because the right heart is relatively large, as it gets its supply during fetal

life, from the ductus arteriosus rather than from the lung. The equality in size of the two sides was demonstrable in dead as well as in living new-born children. The bulk of the heart is relatively greatest sub partu, it being 0.84 per cent of the entire body weight in the new-born and 0.52 per cent in the adult.

The lower border of the liver does not lie at the arch of the ribs, but regularly surpasses this line. This may be due to the relatively small sagittal axis of the thorax at this time of life. The liver amounts to 1/10 of the body weight while it is 1/40 in the adult.

The stomach is in an almost vertical position, owing to the high position of the diaphragm, the smallness of the stomach, the empty duodenum and the large liver in the flat thorax. The air vesicle is distinctly visible above the stomach, and is largest right after a meal. Aerophagy is physiological in the new-born. The gastric digestion lasts two hours. Very soon after birth the duodenum contains air in all its parts. The lower intestines do not, because they are filled with meconium.

The marrow is eminently vascular, and every bone contains it in the new-born. The ductus arteriosus Batalli was evidently open as the arteria pulmonalis was demonstrable on injecting the vascular system at the aorta. The aorta is not as wide as the pulmonali.

The left kidney is situated higher than the right; the upper poles converge. The renal capillaries are wide. The kidneys are large, and are relatively double the weight of those in the adult. The spleen is also large. The closure of the umbilical artery seems to be functional, not anatomical, as the muscular layer contracts, the intima coils and atrophy sets in after a few days.

The life test cannot more than complete, but cannot replace the floating test. Children who have breathed neither intra nor extra utero show no air in the inner organs. Heart and liver cannot be distinguished. If the child has breathed a short time the first part of the duodenum is visible. Children having breathed for some time show air in various organs.

MEYER, W. H.: *Roentgen Therapy in Superficial Malignancy*. *New York Medical Journal*, June 15, 1921, cxiii, No. 16, p. 845.

The x-ray, besides making malignancy disappear, is a "positive

quick, painless cosmetically good, yet reasonably inexpensive method for the relief of early superficial malignancy. It is necessary though, that every physician using x -rays have a good knowledge of electrophysics. It cannot be acquired in a few days.

In treating epithelioma the author formerly used the erythema dose, which required repetition. The double pastille dose as employed by McKee gave more prompt reaction, but a second or third application is frequently necessary, and even then recurrence has been noticed.

The author gives some exact data as to exact dose and result. He quotes from Perthes that the absorption in 1 mm. aluminum is roughly equivalent to the absorption in 1 cm. of human flesh. Unfiltered rays, a median tube and pastille dose will, in the skin, cause an erythema and a temporary epilation. It will check the function of the sebaceous and sweat glands. Unfiltered rays, a medium tube and the pastille dose cause a half absorption of 50 per cent in 1 cm. of water, according to Cristen. This is roughly equal to the same absorption in 1 mm. aluminum. If the total cumulative absorption exceeds 50 per cent in the first centimeter of flesh as measured in 1 mm. of aluminum an erythema will result, irrespective of penetration or infiltration. If that is the case, it may be assumed that the metabolic process of radiosensitive structures is subject to inhibition when the total cumulative time absorption per cent per centimeter exceeds fifty. Experience has shown that less than a pastille dose with unfiltered rays is stimulative in action to the skin. The author employs one-fourth, or one-third of a pastille dose, and for strong stimulation a one-half to a two-thirds pastille dose. These represent respectively a total cumulative absorption of 15 to 20 and 25 to 35 per cent per centimeter depth of tissue. The pastille dose with unfiltered rays is the erythema dose and is recognized as of passing inhibitive action to cells of special function. The double dose is necessary for retrogression. Complete destruction with necrosis will occur with from 200 to 250 per cent total cumulative absorption. The author thinks a sufficient dose should be given to avoid recurrence, but it must be determined whether the lesion be superficial or deep, and whether stimulation, inhibition or destruction is indicated and intended. The distance, time, and number of areas for cross-fire in deep cases must be considered. Then protection of normal tissue must be aimed at. Along the line of a beam of x -ray different

effects may occur, such as destruction with necrosis at the skin surface; immediately beneath this a strong inhibitive reaction may occur, while a little deeper there will be a stimulative action diminishing as the depth increases. All three reactions may occur at the same place, depending upon the radiosensibility of the structures involved. The more superficial the disease the softer the ray quality. For deeper seated lesions, greater penetration and filtration are essential. Considering those extending beyond the depth of half a centimeter as deep, the author employs one-sixteenth inch of pressed fiber as a protection from heat, light, corpuscular and extremely soft rays. Destruction of the original seat of invasion, including a narrow area of supposed healthy tissue should be aimed at. Strong inhibitive doses, preferably by cross-fire, are applied a considerable distance beyond the original lesion, not alone laterally but in the depth. Possible metastases must be treated by cross-fire.

A summary of cases shows in each complete retrogression in from one to two months, with but a single recurrence. Ninety-nine per cent have been without recurrence.

STEVENS, I. T.: *The Newer Technic for Deep Roentgentherapy.*
• *Medical Record*, May 14, 1921, xcix, No. 20, p. 834.

The old standard technic used as a standard, 5 milliamperage of current, 9-inch parallel spark gap, 8-inch focal distance, 6 mm. filter, and an exposure over each area of from 5 to 10 minutes or according to the output of the machine in use. A cross-fire was applied directly onto the new growth. The author has had very satisfactory results. In some few cases of malignancy the effect did not, however, go beyond general improvement and some prolongation of life, and lessening of the last agonies. With the newer technic, often called the German, it is not uncommon to see inoperable growth of the uterus disappear within ten days following the first series of treatments. This is done with "the knock-out dose". In this method the deep roentgentherapy provides for the operation of the tube at a constant voltage equivalent of a sixteen to eighteen-inch parallel spark-gap. The filter consists of one millimeter of either zinc or copper. The secondary radiations are now believed to equal the primary, and to increase them the focal distance has been increased to

from 50 cm. to 70 cm., and their ports of entry have been enlarged to 20 cm. by 20 cm.

The addition of each millimeter filter by filtration stops at the thickness of 4 millimeters, and the rays are not changed much and at a thickness of 10 millimeters, the rays are practically homogenous. Dr. Coolidge has advised against the installment of the new high power transformer from Germany, but has stated that, in order to obtain the best results possible, those who have not as yet been able to raise their voltage to 126,000 will have to do so in the near future. All must increase the focal distance and the size of the ports of entry so that the secondary radiation may be increased to their maximum quantities. The focal distance should be about 30 cm., the ports of entry being at least 20 cm. x 20 cm.

The experiments have proven that marked detriment occurs in the endocrine and ovarian parenchyma. Impregnated ova will degenerate, and embryonal death occurs. Temporary sterilization occurs, especially if the apparatus is suitably focussed.

ADLER, L.: **Operative X-ray Treatment of Uterine Carcinoma** (Zur operativen und Strahlenbehandlung des Gebaermutterkrebses). *Strahlentherapie*, February 15, 1921, xii, H. 1, p. 109.

The routine treatment of uterine carcinoma in the gynecological clinic of Prof. Schauta in Vienna was radical extirpation of the carcinomatous uterus, extended vaginal carcinoma operation being employed. Any possible carcinomatous remnants in the parametrium were treated by direct application of radium to the pelvic walls, immediately after operation. Homogenous irradiation of the pelvis by roentgen rays was employed to remove any traces of neoplasm within this part of the body. The author is of the opinion that this method of doing away with laparotomy is not yet the ideal, however.

Primary mortality was low in the reported series of 329. A permanent result was attained in 22 per cent, which is a little better than is found in most clinics from laparotomy.

SECTION ON NEUROLOGY AND PSYCHIATRY

TIMME, W.: **The Mongolian Idiot.** *Archives of Neurology and Psychiatry*, 1921, v, No. 5, p. 569.

In 23 out of 24 non-selected cases of Mongolian idocy, the radiograph of the skull showed an excavation under the anterior clinoid processes in the anterior part of the fossa pituitaria. Presumably there was also a change under the olivary process and optic groove, and the excavation communicated directly with the anterior portion of the fossa itself. The anterior lobe of the pituitary is known to have an influence on the growth and genital development. Mongolian idiots are clinically characterized by subnormal and disproportionate body growth with a lack of genital development. Undescended testicles are quite frequent, abnormalities of the genitals with tardy menstrual flow or amenorrhea are common. The extreme pharyngeal mucous secretion is due to the intimate relationship which, in early life, exists between the anterior hypophyseal lobe and the pharyngeal glandular elements. In these patients, the excavation extending to the optic groove engenders eye symptoms. The optic discs are unequally grayed, especially in the deeper layers and on the temporal sides. In the majority of cases, especially where the retinal and choroidal disturbance was pronounced, the disc was apparently edematous. The retina surrounding the optic nerve head is often edematous and swollen.

Theoretically, disturbances of the anterior portion of the pituitary body might produce many symptoms shown clinically by Mongolian idiots. To investigate the relationship the author proposes careful examination of all parts of the pituitary gland in necropsy examination of Mongolian idiots.

On this theoretical basis the author has inaugurated a therapy which includes hypodermic injections of anterior lobe extract combined with whole gland feeding and thyroid administration in small doses. In one Mongolian idiot the testicles have descended since treatment was begun, and there has been mental improvement. It must be noted, however, that excavation under the anterior clinoids and optic groove is seen occasionally in persons without Mongolian symptoms, who have isolated signs of anterior lobe disturbance, that is, abnormalities of growth and genital development.

KIRBY, G. H.: **Alcohol and Syphilis as Causes of Mental Diseases.**
Journal of the American Medical Association, April 16, 1921, lxxvi,
No. 16, p. 1062.

Rate of Incidence of Alcoholic Psychoses.—In the last twelve years 77, 334 cases of alcoholism have been treated in the alcoholic wards of the Bellevue Hospital. In 1910, 31.7 per cent of all the cases passing through the Bellevue Hospital were diagnosed as "alcoholism". This was the highest point in the twelve years. There was a gradual fall each year until in 1920 only 5.8 per cent of the cases were so diagnosed.

During the same twelve years there were admitted to the New York State Hospitals 5,317 cases of alcoholic psychoses. The chief characteristic of this psychotic group is a marked decline from the high point in 1909, when 10.7 per cent of all cases admitted to state hospitals were diagnosed as alcoholic psychoses, to the low point in 1920, when 1.8 per cent of the admissions were placed in the alcoholic group. In 1909 there were 561 cases of alcoholic psychoses admitted and in 1920 there were 122.

Frequency of Syphilitic Psychoses and the Incidence of These Mental Disorders.—During the last twelve years 9,100 cases of paresis were admitted to the New York State Hospitals. The percentage ratios indicate a marked uniformity of the admissions rate for paresis. A slight fall has occurred during the last two years from the relatively high point of 13.4 per cent in 1918 to 12.5 per cent in 1920.

The rate for paresis per hundred thousand of the population of New York was quite uniform, with, however, a slight upward ten-

dency from 1913 to 1917; in 1918, a high rate was reached. Since then there has been a decline so that in 1920 we have a lower rate for paresis than at any time in the last eight years.

R. H. BENNETT.

JELLIFFE, S. E.: **Hypothyroidism and Tabes Dorsalis.** *New York Medical Journal*, March 2, 1921, cxiii, No. 9, p. 383.

The author had a case sent to him with a diagnosis of tabes dorsalis. The patient had a summary of findings which showed shooting pains coming and going, loss of knee and ankle jerks, slight incoordination of the limbs, slight sluggishness of the pupils, difficulty in thinking and marked asthenia. His own examination confirmed these findings, but the Wassermann blood reaction and the study of the cerebrospinal fluid was negative as to pathological cell count, serum globulin or serum reaction. Closer examination led him to believe that he was dealing with a submyxedematous state. Thyroid treatment made a great change in the patient's condition. He then summarizes 2 cases.

CASE I.—The patient was seen in November, 1913. She was fifty-four years old and had married twice, her first husband having died of tuberculosis. She had 6 children in all, had to support herself for awhile, and had had great economic worry. She had a neurotic nature and her menopause had occurred at forty-five. For about three years she had had neuralgic pains from the elbows down, severe, paroxysmal, and lasting from ten to twenty minutes; sometimes she had five or six attacks a day, and sometimes she was free from attacks for a week or two. In the last two years she had three severe attacks of pain in the abdomen with nausea, violent vomiting, and diarrhea with mucus discharge. Examination showed no paralysis. She showed markedly sluggish pupil reaction, diminution in patellar reflexes and Achilles jerk. Hypotonia was definite; no Romberg; no bladder disturbances. Some tenderness of the nerve trunks was present and she was heavy mentally. The skin was thick, dry, and scaly. The hair was scanty and falling out; the mouth dry, tongue thickened, ridged by the teeth. The eyebrows were scanty, nails fragile, arthritic tenderness. She was constipated. With a negative blood Wassermann and cerebrospinal fluid, a diagnosis of sub-

myxedema was made. The cause of the thyroid deficiency was attributed to constant economic distress, family anxieties, and a definite Jocasta-like situation with one of her sons. Thyroid therapy for a time was of much service. The pains disappeared and her fatigue was lightened. The constipation improved after the administration of 2 grains (0.130 grams) of thyroid each day. The skin became less puffy, less waxy, and the anemia improved. The knee jerks were more active, the pupillary reactions more marked, irregularity less, both pupils myotic. The skin thickness still persisted. When seen in October, 1919, six years later she was better and for a time she stopped the thyroid. On stopping thyroid she often regressed to her former condition, but with treatment there was definite improvement.

CASE 2.—Woman, aged thirty-six, seen in 1917. Patient came with diagnosis of *tabes dorsalis*. Her father was a religious fanatic. At the age of sixteen she was seduced by a physician then went on the stage as a chorus girl for two years. She had a Neisserian infection, and when twenty years old contracted severe scarlet fever with arthritis; then salpingitis, and a complete hysterectomy in 1907. At the time of writing she was a married woman of social position and accomplishment. In 1900 she had a "big fever sore" on her lip which lasted several weeks, and was burned by a doctor, a hole remaining therefrom for three weeks; no eruptions of any form occurred. Present condition began in 1916; patient had feelings of great uneasiness; shooting pains in the legs and arms; at times a band of anesthesia unevenly distributed about the waist. Occasionally she had severe attacks of projectile vomiting lasting for two days. She was always cold and her skin became like goose-flesh; had frequent and severe colds; was nervous and fidgety; was usually constipated, with periodic diarrheas. In June, 1917, she had a circular zoster attack; her "pep" was gone. She was a well built, moderately adipose woman, whose skin was hard and cold; the pilomotor reflexes irregularly hyperactive; red dermographia present; typical hypothyroid eyebrow thinning. Her left pupil was larger than the right with sluggish reaction. Aschner reflexes negative; Mobius positive; no paralyses; diminished knee jerks; Romberg present; some swaying, negative nerve trunk tenderness, no ataxias. She showed negative blood Wassermann; spinal fluid 7 cells, no glucose, no fixation. Under thyroid treatment she improved. Therefore, it would appear that the dysthyroid condition can bring about a typical yago-

tonic state which can give rise to the characteristic crises of a similar vagotonic state which lies behind the crises of tabes.

J. Ross

MORRIS, M. F.: **Hyperthyroidism.** *Medical Record*, 1921, XXX, No. 4, p. 133.

The author deals with causes, symptomatology and treatment. He says it is, "A disease characterized by excessive catabolism of all body tissues, caused by a hypersecretion of the physiological thyroid hormone."

It occurs more frequently in women between fifteen and forty-five years of age, and at one of the sexual epochs.

The function of the thyroid gland is regulation of metabolism detoxication, sex-gland development, circulation, intraglandular equilibrium, and emotional equilibrium. The absorption of too much of the thyroid secretion is the cause of hyperthyroidism.

The most frequent causes of increased secretion of the thyroid hormone are bacterial or chemical toxemia, among the latter pilocarpine, phosphorus, turpentine and silver nitrate, all febrile infections, tuberculosis, syphilis, typhoid fever, measles, pneumonia, small-pox, also the fetal waste matter during pregnancy. Further causes are infections from the tonsils, nasal sinuses, gall-bladder, appendix, genito-urinary tract, oral infection, gastric and intestinal infections. The continued increased secretion of the gland stimulated by chronic infections increases the metabolic rate. The result is the formation of the usual catabolic poison in excessive amounts, this in turn causing additional stimulation.

Neurin is a substance to which the thyroid gland is especially sensitive. It is of psychoneural origin. If nerve cells are violently stimulated by fear, anger, etc., disintegration of, and excessive catabolism in the nerve function are the result, and production of phosphoric acid, cholin and nervin are accompanying features. The thyroid gland strives to detoxicate the system with the result "That the thyroid hormone becomes a destroyer of the nerve cells by causing excessive catabolism of the chromatin and fatty substances, particularly lecithin."

The severity and number of symptoms are proportional to the

degree of hypersecretion. Palpitation, dyspnea, anginoid pains and tachycardia persisting day and night, dilatation of the heart with functional murmurs are the symptoms on the part of the heart. Throbbing of the blood-vessels, especially at the neck, a fast and thready or a capillary pulse, are often found; in early cases the blood-pressure is elevated, in advanced cases it is always subnormal. There is secondary moderate anemia, pronounced leukopenia with increase of small lymphocytes. The nervous system is markedly affected with tremor, of a fine intention type, sometimes the entire body trembles; reflexes are increased. Often there are hysteria, neurasthenia, hallucinations, hyperactivity of the intellectual centers. Sometimes there is apathy and depression, suicidal and homicidal tendencies occurring, and sometimes the type is also manic-depressive.

Nausea and vomiting, diarrhea, gastro-succorrhea and hyperchorrhia are the gastric manifestations. The sexual function is usually decreased. Menstruation is, in most of the cases observed, little and irregular.

The thyroid gland is swollen, soft, smooth, compressible, and often tender, and a pulsative expansion and systolic murmur are perceptible.

Exophthalmos or slight similar manifestations are present, also paralysis of the ocular muscles, etc. The skin is flushed and above normal in temperature. Sweating is common. The metabolic rate is from 10 to 100 per cent above normal. The oxygen intake is increased, as is the carbon dioxid output. Loss of weight is gradual, and muscular weakness pitiable.

The treatment must have in view reduction of thyroid secretion and upbuilding of body tissues.

Neutral hydrobromid of quinin, ergotin and salicylates are probably best.

Pituitary extract, adrenalin, scopolamin, and spartein are recommended. Sedatives are advised; so are arsenic, sodium or magnesium sulphate, or sodium phosphate, Vichy and Lecithin in one dram doses, desiccated thymus gland, sweetbreads. Psychotherapy is always useful and sometimes indispensable. X-ray treatment is excellent. A dose of thymus should be given at each sitting. Surgical treatment should be resorted to only after all other means have failed.

BROOKS, E. B.: **Significance of Unequal Pupils.** *Journal of the American Medical Association*, April 23, 1921, lxxvi, No. 17, p. 1145.

The chief alterations of the diameter of the pupils are dilatation, or mydriasis, and contraction, or myosis. Mydriasis has been divided into *irritation mydriasis*, caused by irritation or stimulation of the cervical sympathetic, and *paralytic mydriasis*, iridoplegia, caused by paralysis of the third nerve in some portion of its course. Myosis has been divided into *irritation myosis* caused by irritation of the pupil-contracting fibers of the third nerve, and *paralytic myosis* caused by paralysis of pupil dilating fibers, that is, the cervical sympathetic.

In the mydriasis due to irritation of the cervical sympathetic, the pupil may be moderately or widely dilated. If the dilatation is not extreme it reacts to light accommodation and convergence.

Irritation mydriasis occurs in:

- (1) Hyperemia or irritation of the cervical cord from;
 - (a) Contusion or other trauma.
 - (b) Pressure from:
 - Pleural adhesions at the apex of the lung in tuberculosis.
 - Syphilis.
 - Aortic insufficiency.
 - Aneurysm.
 - Cervical glands.
- (2) Tumor of the cervical cord.
- (3) Spinal meningitis.
- (4) Acute mania.
- (5) Early stage of tabes and parietic dementia.
- (6) Wide and fixed in uremic, eclamptic and epileptic convulsions.
- (7) Ptomain poisoning.

The mydriasis due to paralysis of the oculomotor nerve is more frequent than the former; the pupil is not necessarily dilated to the maximum. It does not react to light accommodation and convergence unless only paresis is present.

Paralytic mydriasis—iridoplegia, paresis or paralysis of the sphincter, sphincter nucleus, or efferent tract occurs in:

- (1) Basilar disease affecting the foregoing structures.
- (2) Pressure on the centrum, great in degree.

- (3) Edema of the cortex.
- (4) Late stages of meningitis.
- (5) Hemorrhage of the centrum ovale or cerebral peduncles.
- (6) After diphtheria.
- (7) Trauma.
- (8) Glaucoma.
- (9) Mydriatic drugs: atropin, euphthalmin.

Irritation myosis occurs in:

- (1) All inflammation at the base of the brain and the meninges.
- (2) Brain abscess.
- (3) Beginning sinus disease.
- (4) Apoplexy.
- (5) Early tabes.
- (6) Early stage of tumor involving the third nerve.
- (7) Onset of hysterical or epileptic explosion.
- (8) Tobacco amblyopia.
- (9) Drugs: pilocarpin; opium; physostigmin; chloral.
- (10) Iritis.

In the form of myosis caused by paralysis of the pupil-dilating fibers of the cervical sympathetic, the pupil is contracted; but mobility is preserved in that it reacts to light and convergence.

Paralytic myosis occurs in:

- (1) Lesions of the cervical cord.
- (2) Some forms of bulbar palsy.
- (3) Some forms of multiple neuritis.
- (4) Pseudo-dementia paralytica of syphilitic origin.
- (5) Pressure from: (a) goiter; (b) cervical glands; and (c) aneurysm.

(6) Trauma—syndrome of Claude Bernard-Horner: (a) Myosis; (b) ptosis; and (c) Exophthalmos.

R. H. BENNETT.

FINLEY, C. S.: **Endocrine Stimulation as Affecting Dream Content.**
Archives of Neurology and Psychiatry, 1921, v, No. 2, p. 176.

A woman, 45 years old, with a history of good health up to an attack of influenza, was of a happy active disposition and in a responsible position calling on her physical and mental capacities.

After the influenza attack she was seized by lassitude, and fatigability kept on after a recreative pause of some inactive days. She was stout and well-nourished, cough and gastro-intestinal symptoms had passed and it was not only hard to get up, but at four o'clock in the afternoon she was tired. The blood-pressure early in the afternoon was 90 systolic.

One grain of the extract of whole pituitary gland was given every morning. After 10 days the blood-pressure had risen to 110 systolic, and she felt better. Initiative and ability to work returned.

The remedy produced pleasant dreams, so that the patient would awake in a happy mood. Colors, vacation, sunny scenery, brightness and cleanliness of surroundings were in the foreground of frequent dreams, which she formerly had not had at all, as far as she remembered.

After three weeks of administration of pituitary extract, coarse intention tremors of the hand, and sharp adductions of the thumbs occurred.

The therapy was then stopped and a slight dosing with suprarenal gland substituted. While this was given, the dreams were unpleasant, the pleasant one's however recurring as soon as this medication was stopped.

ELY, F. A.: Epidemic Encephalitis, Residual Symptoms, Chronicity, and Relapsing Tendency *Journal of Nervous and Mental Diseases*; 1921, liii, No. 2, p. 199.

The author has observed several patients who did not fully recover after encephalitis. Relapsing tendency is seen in some cases. A chronic or subacute state may last for many months, and newly localized symptoms may appear in which an almost typical recurrence of symptoms observed at the onset, may be reproduced. The cause of the root pains and myoclonic muscle contractions may successively act upon different segmental levels of the cord or its corresponding nerve roots. Descending and ascending radiculitis may be the result. This condition may involve motor nuclei and roots of the cranial nerves.

Incapacity for full work may prevail for many months after encephalitis.

The symptoms of this disease are protein in character, "and tend to prove that both the central and peripheral nervous structures are susceptible to some irritant generated by the invading microörganism."

ROSANOFF, A. J.: **A Theory of Personality Based Mainly on Psychiative Experience.** *American Journal of Insanity*, 1921, lxxvii, No. 3, p. 417.

On the basis of constitutional neuroses and psychoses the type of the antisocial, cyclothymic, autistic, and epileptic personalities have developed. The antisocial is characterized by hysterical actions, malingering, pathologic lying, swindling and, sometimes a criminal career. The motivations are illicit, selfish, and lack of compunction. The cyclothymic type develops manic-depressive psychoses. Kraepelin distinguishes the maniac, the depressive, the irascible make-up, and the emotional instability. These persons are unwilling to constrain themselves to systematic mental culture, but will show rapidly changing secondary activities. They are elated, self-confident, care-free, approachable, communicative, like showy dress or run about dirty. Their conversation is quick and animated, their writings are verbose, prolix, full of personal remarks, they are town-characters and mix into everything. In mild cases there will be an artistic tendency, nimbleness of spirit, spirit of enterprise, kind-heartedness. The depression type is susceptible to worry and disappointment. These persons are unable to surrender unreservedly to the future, they bear life as a burden, with conscientious self-denial, feel useless, anxious, nervous, ill, fear disease. They lack self-confidence, decision, seek advice of others, many play constantly with suicidal thought. They often are dyspeptic. Periodic mania often will develop on this basis, or maniac and depressive attacks will alternate. The irascible are of a fluctuating emotional equilibrium, are easily offended, hot-headed, give way to outbursts of anger, with tendency to assault. Ordinarily the patients are serene, self-assertive, ill-controlled, with intervening periods of crossness and dejection; they will cry, will complain and go to bed. Those emotionally unstable are lively, sparkling radiant, full of joy of life and enterprise one day, and depressed, listless, dejected, needing rest the next.

The autistic personality develops dementia praecox or schizophrenic psychoses. The fundamental trait is generally a narrowing reduction of external interests and contracts, and preoccupation with inward ruminations. They are stubborn in a passive way, are reticent, seclusive, are hard to influence, they do not unburden their mind, are shy, and live in a world of fancies. They, as children, keep themselves aloof from childish naughtiness.

In practice the epileptic type is easily distinguishable. The main traits are periodic alterations of mood and consciousness. Aura, loss of consciousness, postepileptic stupor, delirium, automatism, these are well known. There is furthermore, transitory-periodic irritability. A few days or hours before a seizure the patient is querulous, fussy, fault finding. He finds his surroundings unsympathetic. These nervous attacks may represent fits without seizures. And after a seizure they may disappear as by magic. Sometimes brief "periods of inspiration, avalanches of ideas, and mood of ecstasy" occur. "Strong, tenacious, unreasoning personal attachments," or similar prejudices and dislikes, impulsiveness, religious fervor, tendency toward mysticism, sometimes with credulousness and superstition, heightened the feeling of self. An epileptic patient will be singing hymns and in the next moment will attack another on slight aggravation.

The so-called normal personality is not free from selfish motivations and antisocial or violent destructive impulse, but can inhibit them; emotions can be controlled to an extent, "preventing interference with steady and purposeful activity." The anatomical basis of epilepsy and schizophrenia is brain atrophy, which goes hand in hand with the mental deterioration. Deterioration sets in early in these two types, and in the cyclothymic and normal person there is greater durability. "Cyclothymic personalities are protected against such pathological manifestations of autistic thinking, as hallucinations and delusions by the continuity of their external contracts." So is a normal personality. "Nervous stability" maintaining uniformity and continuity of consciousness and avoiding fainting spells, convulsions deliria, automatism, absences, are found in normal as well as in antisocial and cyclothymic personalities, and in a lesser degree in the autistic. Pure types are the exception. Even those segregated in institutions require custody or assistance by reason of some limited, perhaps temporary, psychic disability. So-called nor-

mal persons show antisocial tendencies, lability of moods, autistic thinking and a tendency to become faint and lose consciousness or convulsions under the influence of various physical and psychic causes.

Similar heredity is the exception in families, and by the physician this mixed group is generally put under the head of neuropathic constitution. The above-named abnormal types are probably determined by special factors in heredity. "Certain hereditary factors, while determined certain clinical manifestations, have at the same time the effect of inhibiting manifestations of other factors which are also present," according to the terms of Bateson's epistatic and hypostatic principle.

Manic-depressive parents often have schizophrenic offspring. The reverse is rare. This suggests the epistatic position for manic-depressive psychoses, while in relation to normal personality it probably occupies hypostatic position. Epilepsy seems to occupy a position which is hypostatic in relation to normal conditions, and also to the various constitutional psychoses. Fainting spells, convulsions, and other epileptic manifestations occur more often in cases of dementia præcox than of manic-depressive psychoses. Catatonia-like states one sees more in manic-depressive psychoses than in hysterical or other psychoneurotic cases. Rudimentary psychoneurotic or cyclothymic phenomena are more frequent in schizophrenic or epileptic ones in normal individuals.

The proportion of intellectually inferior patients in the New York State hospitals among 976 cases amounted to 6.6 per cent for manic depression, 17.4 per cent for dementia præcox, and 28.1 per cent for epilepsy. In the Binet test of four epileptics one showed a mental age of four, one of ten, the two others of eleven.

Criminality, alcohol and drug addictions are more prevalent in men than in women; hysteria is more prevalent in women, and so are manic-depressive psychoses; while dementia præcox is more common in men. Heredity in nomadism is strikingly sex-linked.

Handsome looks are in some degree correlated with a cyclothymic personality, mostly within normal limits. Sexual selection may have a part in the fact that in schizophrenic epilepsy and feeble-mindedness there is rarely beauty. Career, domestic destiny, robustness, ugliness, talent may enter into the alteration of personality. Not all the personality components of an individual are present at birth, nor

do they develop simultaneously with growth. In every case of established epilepsy there are dozens of cases of light and severe seizures, in infancy and childhood due to teething, worms, indigestion, constipation, a fever, etc., etc., they may recur, and may be outgrown. For every case of fully developed dementia præcox there are instances of every schizophrenic manifestation in childhood, for instance, shyness, mutism, verbigerations, mannerisms, self-abandonment to autistic romance, or hallucinations and delusions. They may run a mild course and be outgrown. Manic-depressive traits such as readiness to cry, screaming with rage, mobility of attention, talkativeness, emotional instability may appear in children. They disappear when sobering down from maturity finally takes place. Hysterical manifestations, malingering, sneaking and other kinds of antisocial behavior are seen in children as a manifestation of immaturity.

Characters often altogether change with the onset of autogenic development. Persons in whom the normal overlay seems thin are susceptible to the action of alcohol, and all kinds of neuropathic manifestations will come to the surface. In the most familiar types of drunkenness the manifestations belong to the cyclothymic complexes: less common are the so-called pathological types which are delusional and convulsive or there may be epileptic delirium. This latter state is followed by sleep and amnesia. In organic cerebral affections, especially of the cortex, in cases of general paralysis, organic dementing processes may be observed dissecting the normal overlay, but in the highest degree in the slow progress of tabes. In the early stages there is a marked antisocial tendency, such as thefts, cunning lies, etc. In other cases there is an attack like manic-depressive psychosis.

Paranoiac conditions unquestionably of a schizophrenic nature make their appearance in middle or old age. Sometimes so-called senile epilepsy will show a history of infantile convulsions.

JACOBSON, E.: **Reduction of Nervous Irritability and Excitement by Progressive Relaxation.** *Journal of Nervous and Mental Diseases*, 1921, liii, No. 4, p. 282.

The Weir-Mitchell rest cure has been considered a step in the right direction for treating nervousness. It seems logical to search

in physiologic relaxation for a more direct and efficient means of bringing quiet to the nervous system.

Excitement and irritability of the cerebrospinal nervous system will show itself in the form of motor symptoms. Striated muscles will be overactive, and speech or other functions will reveal the disturbance: wrinkling of the forehead, frowning, the wide opening of eyelids, squinting, frequent winking, restlessly moving eyes, prolonged staring, tightness of lips, often with a downward curve at the angles, face muscles tense or quivering, speech rapid or broken, voice variable or high-pitched, frequent swallowing, etc. Overactivity or increased tonus of the central nervous system, as actions of the striated muscles, are subject to voluntary control, and are relaxed by every individual when going to rest. The neurotic individual has partly lost the natural habit or ability to relax. The patient will, however, not be able to relax at first if the stimulus to the mental irritation is not removed. It will be necessary to teach the patient not only relaxation of the limbs, trunk and neck, but also of the small muscles of the face, eyelids, etc. The average person does not know when he is tense. There may be a residual tension, while lying quietly on a couch, which in chronic insomnia, must be overcome. Voluntary continued reduction of contraction, or tonus of muscle groups and of motor or associated portions of the nervous system must be practiced. A group is relaxed progressively from minute to minute, the patient first having been made to contract it in order to understand when the muscles really are relaxed. New groups are then put into a habit of relaxing from one day to another, a habit of repose is acquired, and quiet is automatically retained. Suggestion was not used, but may of course be combined with the relaxing drill. Instructions may be given as to the method of relaxing, as: "letting go" the leg in front and in back, permitting the back to become as limp as a rag, and voluntarily inducing relaxation in the tongue, lips, and face.

Relaxation during activity may be practiced, and irritability and periods of nervousness forestalled. A patient may continue to be inwardly worried, enraged, or anxious till residue tension is overcome. The treatment lasts from 20 minutes to 2 hours. Some patients may be taught on a few groups of muscles in three or four sittings, and thereafter develop the relaxing habit.

INTERNATIONAL MEDICAL DIGEST

Vol. II

AUGUST, 1921

No. 8

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	674
Section on General Medicine - - - - -	675-718
Section on Laboratory and Research - - - - -	719-730
Section on Pediatrics - - - - -	731-742
Section on Roentgenology and Electrotherapeutics - - - - -	743-754
Section on Neurology and Psychiatry - - - - -	755-768
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-xxiii
Index of Subjects - - - - -	xxiii-lxv

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1921, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

AUGUST, 1921

No. 8

SECTION ON GENERAL MEDICINE

EHRENCLOU, A. H.: **A Case of Acute Anilin Poisoning.** *U. S. Naval Medical Bulletin*, Jan., 1921, xv, No. 1, p, 123.

Covering the boiling chocolate with a newspaper, resulted in aniline poisoning of a healthy man, twenty-four years old, who drank it. Steeping the paper in boiling chocolate, to verify the etiology of the poisoning, did not show phenol, but aniline in the chronic acid test. A concoction made from these pages and water did not give a positive test.

The patient noticed that the chocolate tasted of print, but he drank two cupfuls. At midnight he nauseated and had abdominal distress. The next day he had attacks of nausea and vomiting, severe throbbing headache, profuse watery stools and tenesums. On the third day the symptoms were milder, but on the fourth there recurred diarrhea, cyanosis and prostration, vertigo and staggering gait amounting to a condition of shock. He was then incapacitated for twenty days, recovery being completed only after thirty days. The face was purplish-bronze, the mucous membranes being even more intensely colored. Ears, fingers and toes were especially cyanotic. The eyeballs were prominent, the orbits sunken, the conjunctival vessels injected and cyanotic. The skin was cool, dry, and leather-like. The peripheral vessels were flattened and hardly palpable. The pulse was slow and small, but regular. The respirations were shallow and sighing. The pupils were widely dilated, equal and slow in reaction. There was frequent vomiting

of a green liquid with fecal odor and brown sediment. The stools were watery, frequent, offensive, and contained mucous shreds.

Later on, the sensibility of the skin was markedly decreased. Temperature was 101.6° F. (38.66° C.); pulse, 88; respiration, 20. White blood-cells, 7,500; polymorphonuclears, 75 per cent; small lymphocytes, 13 per cent; large lymphocytes, 7 per cent. Later on the pulse became weaker, and restlessness and mild delirium set in. The stools then contained some pus. The pylorus and antrum were spastic.

Tea and shock-enemata were given. On the eighth day the temperature dropped to 94.4° F. (34.66° C.) and the pulse was 90. The respiration was 18, and of a Cheyne-Stokes type. Blood-pressure: Systolic, 100; diastolic, 70. Paralysis of the bladder existed for two days. The urine at first had not been smoky, but was now, and was highly acid, amounting to from 3 to 4 ounces for 24 hours. Urinalysis showed albumin.

From 500 to 1000 c. c. (16.908 to 33.816 fluidounces) of Fisher's solution were injected into the circulation, and alkaline drinks urged. Hot, moist blanket packs twice a day, after some time were efficacious.

HOWARD, T.: Percussion Note of the Back in the Lateral Position.

Journal of the American Medical Association, April, 30 1921, lxxvi, No. 18, p. 1229.

A series of fifty patients was studied, and the variations in the percussion note over the back were noted with the patient lying first on one side and then on the other. It was found that:

(1) There was almost invariably a well-marked change in the percussion note over a zone from 2 to 4 inches in width next the bed on the dependent side. The note was short and high pitched, and it seemed reasonable to suppose that this is the result of the deadening of the vibrations by the pressure of the bed. The note over this zone frequently had a musical quality and there was frequently super-added a tympanitic quality.

(2) In 19 patients comparatively less resonance was noted throughout the lower side. This is ascribed to compression of the lower side by the weight of the body.

(3) The effect of the shift of the level of the diaphragm on the lower border of pulmonary resonance is much more apparent in the axilla than in the back, although a change of 1 or 2 cm. (.39 to .78 inch) may often be made out by percussion in the scapular line. There often appears an area of relative dulness at the base on the dependent side which extends up to the level of the ninth or eighth rib. The roentgenograms suggest that this dulness is due to a thinning out of the pulmonary tissue by the dome of the diaphragm. The diaphragm is dragged away from the chest wall on the upper side so that a thick layer of lung lies below the percussing finger over the base of this side, and a relatively more resonant note results.

(4) Of 50 patients examined, 22 showed an area of relatively diminished resonance on the upper side which shifted to the opposite side when the patient turned over. It was usually observed at about the level of the scapular angle, but sometimes appeared nearer the base

FREUDENTHAL, W. **Telangiectases of the Face and Mucous Membranes of the Nose and Throat Associated with Severe Epistaxis.** *New York Medical Journal*, March 16, 1921, cxiii, No. 10, pp. 425-427.

Although etiology is obscure there is an hereditary factor. There are localized dilatations of capillaries and venules, forming distinct groups of telangiectases, especially on the skin of the face, nasal and buccal mucous membranes, giving rise to profuse hemorrhage, spontaneously or traumatically. Microscopically, a developmental defect has been found (Steiner) in the dilated capillaries, the elastic and muscle fibers being wanting. Clinically, syphilis, chronic plumbism, hyperthyroidism and nephritis have been found to be causative factors of cardiovascular degenerative changes which cause telangiectases all over the body.

CASE.—Age fifty-five, male. Mother suffered greatly from nose-bleed. A brother and sister had free and occasional nosebleeds. For the last twelve years patient had epistaxis, which was worse during the past four years since an attack of pneumonia. Examination showed small engiornata all over his body ranging in size from a pinhead to a pea; particularly all over the face and one on the right side of the septum; others on tongue and soft palate. At Montefiore Hospital the diagnosis was as follows: Multiple angiomata.

secondary anemia, chronic nephritis and myocarditis. The patient's first wife had been pregnant six times, miscarried twice, one still-birth, and two children died in infancy. X-ray examination of the accessory sinuses of the nose was negative, but the legs showed marked irregular thickening of the corticalis along the outer aspect of the right tibia and the left tibia to lesser degree. Patient's skull showed few localized areas of bone absorption. On the basis of first wife's history and x-ray findings, a diagnosis of syphilis was made. Wassermann tests were always negative. The bleeding generally lasted from ten to thirty minutes and was very profuse. Every form of treatment was tried but the only thing that gave some relief to the patient was thromboplastin which he applied to the nose with cotton. Finally, intravenous injections of thirty per cent sodium citrate were used with no definite improvement of the nasal hemorrhages but with remarkable decrease of the coagulation time of the blood. Before the first injection, the coagulation time was 16¹/₂ minutes; 3 hours later it was 1.5 minutes. The effect was similar in the following attempts. The injection should be made very slowly, and about 20 c. c. (5.42 fluidrams) used.

J. ROSE.

MUDD, S., GRANT, S. B., AND GOLDMAN, A.: **The Etiology of Acute Inflammations of the Nose, Pharynx and Tonsils.** *The Journal of Laboratory and Clinical Medicine*, Jan., 1921, vi, No. 4, p. 175.

(1) The paper is concerned with the etiology of the acute inflammations of the nose, pharynx and fauces, particularly with reference to recent laboratory inquiries. The question of excitation of sporadic infections by exposure of the body surface to cold is dwelt upon in considerable detail—much more at length than its relative importance deserves, indeed,—simply because the newer data here presented is the contribution of the present authors.

Since the early days of bacteriology, attempts have been made by several proponents and opponents of the infection theory to refer the "common cold" on one hand to the action of a specific microorganism, and on the other to various environmental and constitutional causes, such as exposure to change in temperature, the "lithemic diathesis" and what not. The common cold is, as a matter of fact, in most in-

stances the result of a local infection, but there are many types of "colds" and many infectious agents responsible for them; and the effects of various constitutional and environmental factors in determining infection is often of great importance. Furthermore there are many acute inflammations of the upper respiratory tract not primarily due to the local action of microorganisms, but rather the local expressions of mechanical irritations, of thermal trauma, of nervous reflexes, of drug intoxications, of constitutional disease, or of anaphylaxis.

(2) *Bacteriology of the Common Cold*.—A survey of the literature then would show the following conclusions: (a) A common and fairly well-defined clinical entity, and acute coryza, exists, probably with the filterable virus of Kruse and Foster as its causative agent. This affection is readily communicable and probably does not depend to any great extent upon the action of exciting factors in depressing the resistance of the patient. (b) A heterogenous group of pure and mixed infections of the nose, pharynx and tonsils exists with various clinical pictures—some closely approaching that of Foster, others more circumscribed inflammations—and with any one of a considerable number of bacteria capable, under appropriate circumstances, of acting as causative agents. The microorganisms whose etiologic rôles seem to the writer to be best established are pneumococcus, streptococcus, *Bacillus diphtheriae*, *Bacillus rhinitis*, Friedlander's bacillus, and *Bacillus influenzae*. Strong bacteriologic evidence has been advanced for *Micrococcus catarrhalis*, *Bacillus septicus*, *Micrococcus paratetrigenus*, and *Streptococcus aureus*. The possibility that other organisms may be primarily or secondarily involved is not excluded.

(3) *Excessive Chilling as an Excitant of Infection*.—As to the mechanism of excitation of infection by chilling the skin, current opinion has gone astray. Since the classic studies by Pasteur with anthrax and fowls with wet feet many authors have shown that animals whose blood temperature has been lowered may show decreased resistance to bacterial infection. Trommsdorf believed he showed in such animals a decreased motility and phagocytic activity of the leukocytes and a diminished capacity for regeneration of alexin and for elaboration of specific antibodies. But, as Marchand says, and as our experiments would indicate, no such considerable lowering of the body temperature occurs in the great majority of ex-

posures responsible for excitation of the common upper respiratory infections.

The theory commonly advanced has been that cutaneous chilling, driving the blood inward, produces, by mechanical or reflex means, or both, congestion of the internal organs. Many authors have assumed that such findings apply equally well to the nose and throat. The common observation that chilling may in a few minutes be followed by a feeling of stiffness in the nose, has seemed to lend plausibility to such an assumption. That it is nevertheless absolutely at variance with what actually occurs in the nasal cavity, nasopharynx, oropharynx, tonsils and palate is shown by the experiments of the authors.

The results obtained by the authors in their experiments, which included chilling of different parts of the body, and observation of the reaction of the upper respiratory tract to the various exposures, gave the following data: The results in no sense prove that the sore throats were caused by the increased number of bacteria cultured from the mucous membranes, or that the apparent increase of microorganisms was caused by the ischemia of the mucous membranes incident upon chilling of the body surface. The method is subject to so many errors, and the amount of data thus far obtained so small, that we are not justified in drawing any conclusions. To attribute the apparent proliferation of pathogenic microorganisms to the effect of chilling would seem to be in harmony with the great wealth of clinical and common observation which points to excessive chilling, under proper circumstances, as an efficient excitant of infection of the mucous membranes by their indigenous pathogenic bacteria. Although it is possible that the apparent proliferation was due to the local ischemia incident upon chilling, the inaccuracy of the bacteriologic method and the insufficient data make it impossible to assume that this is so. The effect of trauma by the thermopills, the possibility of transient changes in the flora of the mucous membranes caused by swallowing, gagging, or other muscular activity in the pharynx pressing a plug of bacteria from the tonsillar crypts, the fact that the person's mouth was held open throughout the experiments, with the accompanying accumulation of mucus on the membranes, the errors necessarily introduced in each stage of making the cultures, confuse the results.

C. M. ANDERSON.

CAULFIELD, A. H. W.: **Sensitization in Bronchial Asthma and Hay-fever.** *Journal of the American Medical Association*, April 16, 1921, lxxvi, No. 16, p. 1071.

Some months ago the author made an analysis of 161 cases of bronchial asthma and perennial hay-fever which had been tested for sensitization by the cutaneous tests. Forty-seven (or 29 per cent) gave positive skin reactions, among which thirty-six were cases of bronchial asthma, and eleven, bronchial asthma plus seasonal hay-fever.

A review made of all cases in which tests had been made against proteins furnished these results, the figures indicating the frequency with which positive reactions were obtained: horse dander, 20; dog hair, 17; cat hair, 15; rabbit hair, 1; goose feather, 1; chicken feather, 11; horse serum, 6; rabbit serum, 1; egg, 5; casein, 4; milk, 3; beef, 2; lamb, 1; salmon, 1; barley, 3; oat, 11; wheat, 6; rye, 7; corn, 5; potato, 1; buckwheat, 2; bean, 3; rice, 1; celery, 2; tomato, 2; banana, 1; Brazilnut, 1; cheese, 1; tobacco, 1; and staphylococcus albus, 1.

A total number of 276 cases have been tested against proteins and pollens. Analysis of the cases have left two general impressions which might be summed up thus:

(1) Bronchial asthma is a syndrome with quite wide variations. It frequently requires a very broad type of investigation if all the possible etiologic factors are to be considered.

(2) Despite the fullest type of investigation, there will remain a percentage of cases which one must regard as typical examples of true bronchial asthma, but for which no definite etiology can be demonstrated. Between these cases and those in which protein sensitization has been clearly established, there may be no detectable difference except that they are protein negative.

Technic of the Tests.—Sets of four or five cuts are made with a scalpel on the cleansed flexor surface of the arm, of such depth that only the minutest droplet of blood appears. With a Wright pipet and teat, a drop of 0.4 per cent potassium or sodium hydroxid is deposited on each cut. A glass spatula is dipped into the dried protein or pollen and rubbed into the cut, a separate spatula being used for each protein.

A positive reaction shows up in from five to fifteen minutes as a clear cut wheal surrounded by an areola of hyperemia. The degree of sensitization is estimated by measurement of the wheal. Spurious reactions occur which are characterized by the fact that their borders are less clearly defined; they seldom measure from 4 to 5 mm. in diameter, and they usually appear singly or in groups that are not in harmony with the indications in the particular case.

Treatment.—When the offending protein cannot be deleted from the patient's food or removed from his environment injection with protein solutions is at present the best method to induce desensitization. The author has assumed that desensitization would be best accomplished by observing the following conceptions:

(a) The increase of dose ideally should be such as to produce a local reaction approximating the threshold of a slight general reaction.

(b) The interval should be as short as possible, and reinjection given at or about the time the local reaction subsides. This will vary to between two and four days.

(c) The dose should be increased as much as possible conforming to (a) and never decreased.

The author adopted the method of giving a desensitizing dose a few minutes before the treatment dose, one in each arm. One can fairly reliably classify the degree of reaction induced by an injection in this manner: (a) no reaction in either arm; (b) reaction in the treatment dose arm only; (c) reaction in both arms; and (d) reaction in both arms plus varying degrees of general reaction. Using the information thus obtained from the previous injection the author has had but one general reaction. The various solutions used have been the desensitizing dilution of 1:100,000; the treatment dilutions of 1:20,000, 1:1,000, 1:100, 1:10, or 1:5.

Hay-fever.—Seventy-seven cases of hay-fever or suspected hay-fever have been analyzed. Of these 51 were typical cases of hay-fever. Major reactions were obtained against the following pollens: alder, sweet vernal, meadow fox-tail, orchard grass, June grass, timothy, red top, daisy, dandelion, plantain, yarrow, mustard, golden-glow, dock, rye, corn, sunflower, dahlia, cosmos, goldenrod and rag-weed. The results are suggestive and may be grouped as follows:

(1) Pollen positive cases without clinical manifestations. The daisy pollen was used as a test in sixty-five cases, major reactions

being obtained against it in twenty-two cases and lesser reactions in twenty-three. In none of these cases were there clinical manifestations.

(2) Comparisons of the reaction obtained before and after treatment on patients who had been practically protected from any clinical manifestations have shown that in some the reactions were as large after as before treatment. In others little or no sensitization was evident after treatment.

Results of Treatment.—Thirty-seven cases are given. (1) Seven received no treatment.

(2) Seventeen patients received only partial treatment. Improvement was noticed in all.

(3) Thirteen patients received full treatment. All were practically protected.

R. H. BENNETT.

FROTHINGHAM, C.: **Influenza.** *American Journal of Medical Science.* April, 1921, clxi, 528.

In a considerable number of cases of influenza, after a drop in temperature about the second or third day, an elevation occurs. This second elevation generally signifies an extension of the infectious process to the lungs, with a beginning bronchopneumonia. Whether this secondary rise in temperature indicates an invasion with a complicating organism, or whether it is due to an extension of the existing process, is not known. At this time cyanosis generally becomes more pronounced and signs of infiltration of the lungs appear.

In the cases where the signs simulate a lobar pneumonia it is common for the character of the lung signs to change from day to day and hour to hour, so that at one time the signs suggest pleural effusion, at another a definite lobar pneumonia, and at another a bronchopneumonia.

In cases which recover the temperature drops by crisis or generally returns to normal, this being determined, probably, by the type of the secondary organism and the character of the lung lesions. The leukocyte count remains low at first. Even in some cases where the pneumococcus is the secondary invader the leukocyte count remains below normal throughout the illness.

No specific treatment has been recommended for this disease called influenza in the early stages before involvement of the lung has taken place, except the use of vaccines has been applied chiefly to the treatment of complicating pneumonia. Vaccines have been tried therapeutically for the various types of pneumonia. These have usually been made from several strains of the pneumococcus, one or more strains of streptococcus and the influenza bacillus. Frothingham considers that it is not possible to form an opinion of the value of these vaccines. Typhoid vaccine has been tried intravenously, but, he thinks without any striking result.

Where Type "I" pneumococcus is present the antipneumococcus serum against this organism has been used. If this organism was not present, serum from patients convalescent from influenzal pneumonia has been used. Frothingham thinks that the enthusiasm for serum treatment is diminishing, and says that he has never seen any benefit from its use. He says, of intravenous injection of glucose in influenzal pneumonia, that those who consider it beneficial recommend its repeated use, as it is without any specific action on the disease. Where the complicating organism is Type "I" pneumococcus, the antiserum for this organism forms the exception among specific remedies that he recommends. He also considers that, as a preventive measure, the wearing of masks, so far, is not of proved value.

The only prophylactic measures that he recommends unqualifiedly are rest, good nursing care, and such relief medicaments as digitalis for heart symptoms, etc.

KOLMER, J. A., DAVIS, L. C., AND JAGER, R.: **The Influence of Chaulmoogra Oil on the Tubercle Bacillus.** *Journal of Infectious Diseases*, 1921, xxviii, 265-269.

Walker and Sweeny found that the sodium salts of the total fatty acids of chaulmoogra oil (chaulmoogrates) possess an extremely high bactericidal and antiseptic activity for the tubercle bacillus in vitro. By incorporating these salts in fluid culture mediums, they have found that dilutions as high as 1:100,000 are bactericidal and 1:1,000,000 may be antiseptic. Furthermore, these chaulmoogrates were found highly specific for acid-fast bacilli in similar experiments with other microorganisms. Rogers (*Brit. Med. Jour.*, 1919, i.

149), has also suggested the use of sodium chaulmoograte in the treatment of tuberculosis, but, believing that intravenous injections may produce exacerbations, has used instead the sodium salts of the fatty acids of cod-liver oil.

HARPER, P.: **Preliminary Note on the Treatment of Nodular Leprosy by Intravenous Injections of Chaulmoogra Oil.** *Indian Medical Gazette*, 1921, lvi, 105.

The mixture used was the following: Iodin 1 grain (.065 gram): ether 500 minims (30.8 c. c.); oil Chaulmoogra 500 minims (30.8 c. c.). The ether is relied on for clarification, and the iodine for sterilization of the solution. For the first two or three days only 10 minims of the mixture (containing 5 minims of oil chaulmoogra) is injected. Thereafter 20 minims are given.

The following veins have been used for injection; external jugular, median basilic, median cephalic, small veins of forearm and back of hand, cephalic, basilic, internal saphenous and veins of dorsum of foot. The bigger the vein the better, because in a big vein the fluid is diluted more quickly by the blood. The injection may be given quickly for the first 5 minims of the mixture, but must thereafter be given very slowly, consuming about three minutes for the 20 minims. Intravenous injections of 20 minims of the mixture are given daily for six days a week, none being given on the seventh day. He proposes to continue this as long as indications point as present. An ordinary 20 minim hypodermic syringe with the finest possible needle is used. The immediate results are: (1) taste of ether on injection of first 5 minims; (2) acceleration of respiration and pulse; (3) cough in cases with marked nasal and laryngeal disease, four hours after injection there being a rise of temperature gradually reaching 100 or 101 F. (37.22° to 38.33° C.) lasting for 8 hours, falling gradually to normal, and (4) leukocytosis. The author has given hundreds of these injections and so far has had no suspicion of fat embolism or other serious trouble. All patients have gained in weight with one exception and his weight has remained stationary.

SLATER, S. H.: **Some Interesting Things About Tuberculosis.** *Medical Record*, 1921, xcix, No. 2, p. 56.

The patients with a negative family history often offer a more unfavorable prognosis than those coming from a tuberculous family.

Tuberculosis in the early stages is curable. Other diseases must be carefully diagnosed in the tuberculous patient. The associating condition may be tuberculous or nontuberculous; some of the most common are pleurisy, laryngitis, adenitis, fistula, meningitis, tuberculosis of the bones, joints, intestines, etc. Syphilis is a very common accompanying disease and, if cured, there is a good chance for the patient's recovery.

The author believes in telling the patient the truth about his condition, in early as well as advanced stages, for his coöperation as well for himself. In order to avoid further infection, this information is necessary.

BLANTON, W. B., AND HEALEY, W.: **Hemochromatosis. Report of Four Cases.** *Archives of Internal Medicine*, April, 1921, xxvii, No. 4, p. 406.

In reporting 4 cases of bronze diabetes, the authors have taken occasion to review certain pathological and theoretical considerations of the condition from the literature and summarize the findings in 75 available cases of the 81 reported. The disease is characterized by fibrosis with marked pigmentation of the liver, spleen and pancreas, and to some extent of the other organs. Clinically it presents a combination of diabetes, cirrhosis of the liver with splenomegaly, and pigmentation of the skin. The authors believe with Roth, Abbott and others, "that there is some toxic agent at work which simultaneously produces injury to the erythrocytes and to the cells of the parenchymatous organs. There is then more circulating iron than in normal conditions, making for its greater accumulation in injured cells."

The pigment itself is largely hemosiderin, which is easily demonstrated by Perl's method. The iron-free hemofuchsin sometimes described may well be altered hemosiderin, which in reality does contain iron when stained by special methods, as claimed by Abbott, Beattie and others.

The authors believe that the diabetic symptoms are probably dependent upon changes outside of the pancreas, in spite of the changes in that organ, because the Islands of Langerhans are seldom demonstrably affected.

Of the 4 patients described, 1 died of a terminal pneumonia, 1 of perinephritic abscess, 1 of carcinoma of the liver, and only 1 suffered no fatal complications. The diagnosis was made antemortem in 1 case. Glycosuria was present in 2 cases. In 1 of the 2 in which it was lacking, hyperglycemia was observed and in the other no record of the blood sugar was given. The pathological findings of the 4 cases are described in detail. Extra-cellular pigment was largely confined to the liver, spleen and pancreas, while smaller amounts of extra-cellular pigment were found in many of the other organs.

T. HOWARD.

KEHL, R.: **Treatment of Acne Vulgaris** (Tratamento da Acne Vulgar). *Brazil-Medico*, 1921, A xxxv, Vol. I, No. 16, p. 195.

Acne vulgaris of Fuchs or juvenile acne of Hardy is the most common of the common skin diseases. It is a chronic inflammation of the sebaceous and hair follicles. It starts with a slight discolored swelling. Reddening becomes more pronounced and painful pruritus sets in. The button shaped elevation at last has a hard base and a purulent apex, which opens after two to three days. A small amount of pus is evacuated with some necrotic tissue from the center, which is usually called the core and consists of waste material, horny cells and mucus microorganisms. A crust is then formed and a permanent scar forms. The favorite locations of acne are mouth, forehead, nostrils, thorax and upper part of the back. The so-called chin acne is common in women from 20 to 30 years of age.

Many are probably caused by the microorganism found by Unna. Terra considers the primary cause an invasion of the follicles with staphylococcus of minor virulence, or by the polymorphous coccus of Cedeceutz. Then there are those types of acne which are caused by medicine, bromids or iodine. Savornin gives four types: (1) the toxic, medicinal or professional; (2) pathogenic, alimentary or of intestinal fermentive origin; (3) toxic infectious, from general in-

fection, such as tuberculosis: and (4) degenerative acne, caused by adnormal sebaceous glands. Predisposing conditions are arthritis, lymphatic disturbances, also those of the generative and intestinal organs, and according to Kaposi developmental and involutionary disturbances. The author considers the disease as secondary to primary causes, such as endocrine and metabolic, intestinal and diathetic, genital or medicinal and alimentary causes. Seborrhea is an inflammatory state of the follicles, and generally starts at puberty, just as does acne. Comedones appear around the mouth, on the level of the nostrils, on the back, etc. There is a superfluous fatty secretion, and it may well be considered a secondary sexual characteristic, as the appearance of hair indicated a change in the cell chemistry of the individual, and a consequence in the sexual function of endocrines. Acne results from seborrhea, and seborrhea from hypothyroidism, which results from derangement of dermal metabolism from disturbances in the superficial capillary circulation, loss of epidermal elasticity. Inflammatory conditions and bacterial invasion are the consequence.

The palliative treatment consists in modifying the arthritic, lymphatic or anemic constitution, and in alleviating existing genitourinary or digestive disturbances, in practicing skin hygiene and dietetics. Autogenous vaccine treatment has proven effective in some, and ineffective in other cases.

Where hypothyroidism causes seborrhea, give the opotherapy which is indicated. Do this also in ovarian hypofunction. Endocrine disturbances such as those of catamenia or of a digestive or lymphatic character should be corrected. Sea-fish, spices, etc. should be avoided, and enemata given. The patient should use sulphur soap once a day, followed by wash of a 10 per cent sodium carbonate solution, and apply an ointment, consisting of 1 gram (15.43 grains) resorcin, 1 gram blanco precipitate, 4 grams (61.72 grains) zinc oxid, and 30 grams (462.96 grains) of boroglycerin and lanolin cream.

A facial ointment is used consisting of 3 grams of camphor, 1 gram of phenic acid, 30 grams of vaseline, and 0.05 gram of menthol.

The author uses electric currents for from 10 to 15 minutes, from 2 to 3 times a week.

ENGSMAN, M. F.: *Acne Vaccine Therapy*. *Journal of the American Medical Association*, 1921, lxxvi, 176.

It must be admitted that *Bacillus acne* is the specific causative organism of the disease known as *acne vulgaris*. The histologic and bacteriologic studies of the lesions of this disease demonstrate its causative relationship.

The specific effect of the *acne bacillus* suspensions (vaccines) are best seen in types of *acne vulgaris* known as *acne indurata*, and certain forms of cystic *acne* in which the lesions lie deeper in the cutis. These vaccines have less effect on the more superficial types known as *acne simplex* and *acne pustulosa*, owing probably to the protection offered to the organisms by the walls of the follicles, as in these types they lie more superficially and are less accessible to immune bodies. *Acne vaccines* should be used in the type just mentioned. Stock vaccines, properly checked and controlled, have been just as efficient as autogenous vaccines.

The initial dose should be from 3 to 5 million, to be repeated in from 5 to 7 days. The interval should be gauged according to the reaction of the dose, which is usually exhibited by the appearance of a few new lesions within forty-eight hours after the injection. On the third day after the injection, comedones may be expressed and the lesions opened if necessary. The manipulations of the lesions help at this time to bring the immunizing blood to the part at the "height of the tidal wave of immunity".

Local hyperemia in the form of hot towels or that resultant from manipulation should be used on the third day after each injection, and not before then.

If after a few such doses, new lesions continue to appear, after the third day, a larger dose of from 7 to 10 million should be given, and continued until a proper therapeutic result is obtained, when the interval of administration should be lengthened to two weeks, then three weeks, and finally four weeks, thus continuing the remedy in a prophylactic manner.

If there is an outcrop of many new lesions within forty-eight hours after injection, the dose should be lessened, and the interval of dosage extended. However, if many new lesions appear after the third day, it is an indication for a much larger dose. In no instance should more than 15 million be administered in any injection.

Staphylococcus vaccine is of little, if any, value in *acne vulgaris*. The same may also be said of the *staphylococcus* part of mixed *acne vaccine* and *staphylococcus vaccine*.

Cecil, R. L.: **Pneumococcus Vaccine.** *Journal of the American Medical Association*, Jan. 15, 1921, lxxvi, 178.

Pneumococcus vaccine is a suspension of killed pneumococci in broth or salt solution. It may be monovalent, that is a single strain of pneumococcus in suspension, or polyvalent, when consisting of different strains, or types. The autogenous is usually monovalent. Most of the stock vaccines are polyvalent.

Method of Preparation.—Pneumococci are cultivated from 18 to 24 hours on plain or glucose broth. After killing it may be used directly or be centrifuged and the sediment of bacteria be suspended in physiologic sodium chlorid solution. Finally it is heated at 55° C. (131° F.) for 1/2 hour to kill the pneumococci, and the vaccine standardized by the Wright method or by means of a nephelometer. Cultures are taken to test the sterility of the vaccine, and trieresol is added to a concentration of 0.3 per cent as a preservative.

Pneumococcus lipovaccine is a modified vaccine, very similar to the saline, except that the bacteria are suspended in some vegetable oil instead of salt solution. It possibly is more slowly absorbed and the reactions are not so sharp.

Method of Administration.—*Pneumococcus vaccine* is almost always administered subcutaneously. The proper method of giving the vaccine is to pinch up the skin, and insert the needle well under the dermis. Intracutaneous injections may excite severe local reactions. *Pneumococcus vaccine*, if injected intravenously, induces a sharp constitutional reaction (chill, fever, leukocytosis, etc.) similar to that following the intravenous injection of typhoid vaccine. This is the so-called "nonspecific protein reaction". Under ordinary circumstances the intravenous injection of pneumococcus vaccine is strongly contraindicated.

Dosage.—This varies from 10 to 1000 million pneumococci, or even more. For prophylaxis, much larger doses are needed. In the U. S. Army from 3 to 9 billion was the dose of saline vaccine, and from 30 to 40 billion of the lipovaccine. In the case of saline vac-

cine, three injections were given at seven day intervals, the first dose 3 billion, the second 6 billion, the third 9 billion. The lipovaccine was administered in one dose.

VAN EERTEN, J. W.: **Dangers from Injections of Pituitrin** (Gevaren van de inspuiting met Pituitrine). *Nederlandsch Tijdschrift voor Geneeskunde*, Jan. 29, 1921, lxxv, H. I, No. 5, p. 513.

Pituitrin is generally considered an innocent as well as effective remedy in insufficiency of labor pains. Great caution and precision of technic must be exercised.

The author used 1 c. c. (16 minims) of pituitrin Blomberg in a healthy I-para mother, where labor pains were insufficient. The child's heart sounds were distinct, till after the injection. It was born weighing 3000 grams (6.8 lbs.), but deeply asphyxiated, and could not be restored. The placenta was small, but everything else seemed normal, and no contra-indications existed to the administration.

Another woman, X-para, after injection of 1 mg. (.0154 grain) pituitrin Blomberg had severe pains following labor and nausea, coma, a severe state of shock lasting for several hours.

BRYANT, F.: **The Treatment of Cancer.** *Boston Medical and Surgical Journal*, June 16, 1921, clxxxiv, No. 24, p. 615.

The author starts by saying that decided advances have been made in the past fifteen years and that cancer may now be considered as a somewhat preventable, somewhat curable disease. There are eight vital facts known of cancer. They are:

(1) Cancer is not hereditary, infectious, contagious or communicable.

(2) The age of greatest susceptibility is from middle life on. This teaches us when to watch most closely.

(3) Most cancer students are agreed that the local exciting cause is some form of chronic irritation. This teaches us that cancer is a preventable disease insofar as we may detect and remove the pre-cancerous irritation.

(4) Cancer is first a local or regional disease and, if removed while in this stage, full and permanent recovery may be expected. This fact emphasizes the time element, and that prompt action may mean life, procrastination, death.

(5) Cancer in the different parts of the body has come to be regarded as an almost different disease, requiring different treatment and entailing a different prognosis.

(6) There is much evidence that certain constitutional predisposing conditions aid and abet the local exciting cause. Here we must consider habits of life, modes of living, other diseases, and anything which impairs resistance. This teaches us the value of maintaining the highest degree of vigor during the cancer zone.

(7) Cancer increase keeps pace with modern civilization. People living in a more primitive way are less affected. This teaches us that the trend of modern civilization is not unattended with cancer danger.

(8) The most important fact is that the radiant energy heat of the roentgen ray and radium have a destructive and selectively destructive action upon the cancer cell. This treatment may be termed radio-surgical, that is a combination of surgery and various forms of radiation. The most extensive and complete application of this method has been made at the Mayo Clinic. Three forms of radiant energy are used, namely heat, massive roentgen rays, and radium. Heat is much the best known. Various cauteries and forms of heat have been devised and while they possess some virtue in stopping much of the hemorrhage and malodor, and seem to stop the malignant growth for a while, yet, on the whole it has not proved curative and has never become a routine measure. Heat energy in its destruction possesses no selective ability. It destroys everything in its path, and has little or no penetrative power. The cautery is used to destroy the gross mass of cancerous tissue down to its limits, if possible, for the reason that it gives less hemorrhage, less shock, and by its sealing action, it is less liable to engraft or open up the lymphatics and blood-vessels to cancer-cell transplantation.

The radiant energies of the roentgen ray and radium are very similar. They possess a destructive ability but they can be so applied as to possess selectively destructive ability. Radium is more penetrating and more intense but less extensive. Roentgen ray covers large surfaces while radium is limited to point contact and is

best suited to work inside rather than upon the tissues. The burns produced by each differ, the radium burns heal slowly and without pain, while the x-ray burns almost never heal and are painful.

The nucleus of the cancer-cell is the heart of the cell life and regulates its reproduction. Radium destroys the cell nucleus, while the roentgen ray acts upon the various cell structures, nucleus, protoplasm, the cytoplasm and the centrosomes pretty much all alike. Roentgen ray in irritating doses can produce cancer; radium has never caused cancer because of its specific nuclear action. After radio-therapy operation should not be delayed since the period of increased cell vulnerability is short and the connective tissue development which interferes with the subsequent operation is rapid. The radiations should be thorough and extensive, going out far afield of the growth along the line of the lymphatic drainage or paths of metastasis.

The radio-surgical method is employed in cancer of the cervix as follows: Radium has been applied to the cervix in full dosage. Hysterectomy follows within a week of the last treatment. The operation is followed by another full radium dosage to the vaginal vault either to the cervical stump or to the sutured area. In 96 cases dating back one year there has been no mortality, while the year before the mortality was 20 per cent. It is predicted that in the near future radium will entirely displace all operative procedures in cancer of the cervix, in all stages of the disease. The same general method is employed in cancer of the rectum. In all these cases while radium is being used before and after operations internally the roentgen ray is applied externally in massive doses. The cautery is of great use in cancer of the antrum of Highmore; after that radium is applied to the base of the cavity thus made. This method is preferred to the resection because there is less hemorrhage, less shock, and less recurrence. Radium is the agency of choice in cancer of the face. Radium is justified in all incurable cases because it lessens pain, checks hemorrhage and discharge and prolongs life.

In conclusion the author believes that treatment of malignancy should be classed as one of our modern specialties. The coöperative combination of the radiologist and the surgeon is the greatest hope for the present and the future.

M. M. BANOWITCH.

EDWARDS, C. R.: **Acute Infection of the Thyroid Gland.** *Journal of the American Medical Association*, Mar. 5, 1921, lxxvi, No. 10, p. 637.

The avenues of infection of the thyroid are: (1) by contiguity; (2) by direct inoculation; and (3) hematogenous. That suppurative thyroiditis is seldom the result of similar processes of contiguous structures is amply demonstrated by its rarity. Suppurative thyroiditis, the result of direct inoculation while quite possible as the result of a stab wound, is readily understood, in that any structure may be subject to a similar injury, but deserves only mention in passing.

Those of hematogenous origin would merit the most consideration, and it is more than probable that the majority of suppurative thyroiditides have their origin in this manner.

In 3 of the 4 cases reported the infection followed a respiratory inflammation; and in the fourth case an incomplete intestinal obstruction with operation. This case also had a very transient and mild inflammation of the pharynx.

The onset of symptoms is sudden. There is pain in the neck frequently referred to the ear, teeth, shoulder, arm, or chest. This is associated with an elevation of temperature and a rapid pulse, a persistent cough, dyspnea, painful swallowing, and extreme restlessness. The leukocyte count is usually increased.

The physical examination reveals exquisite tenderness over the anterior portion of the neck below the larynx. There is usually swelling which may be localized or diffuse; there is also redness and a marked induration. There is usually rigidity of the muscles of the affected side.

R. H. BENNETT.

LEVIN, S.: **One Thousand One Hundred Forty-Six Goiters in One Thousand Seven Hundred Eighty-Three Persons.** *Archives of Internal Medicine*, April, 1921, xxvii, No. 4, p. 421.

Levin surveyed 1783 persons for the presence of thyroid disease in Torch Lake and Schoolcraft townships of Houghton County, Michigan. The ages ranged from the new born to 61 years of age.

One thousand one hundred forty-six had enlarged thyroids, with 682 simple goiters, 420 adenomas and cystomas, and 44 colloid goiters. There was no particular difference in the incidence in those who drank spring water and those who drank Lake Superior water.

T. HOWARD.

BACON, M. M.: **The Anatomy of Feet and Their Full Efficiency.** *The Nation's Health*, 1921, iii, No. 5, p. 283.

The human foot consists of one longitudinal arch, long and sloping, and reaching from the head to the ball of the foot, and a transverse arch, short and high, reaching from the outer edge where it touches the ground, to the inner edge of the instep. The deformities may be congenital or acquired. When the muscles which hold the arches in position lose their tone the bones sink. The bones then press on sensitive nerves, and render walking painful. The normal foot is straight and broad at the ball, with a space between the toes, which are straight and flexible. The width of the arch is about one-tenth the distance from the base of the heel to the end of the second toe. In walking the feet should point straight ahead. The inner border should not touch the floor. The heel, ball and toes support the weight on the ground.

Among 500 girls at the University of Kansas but one was found who could be said to have normal feet; she was a young medical student, born in China. She had run in the sand bare-foot when a child. This exercise with climbing is a means of developing the cartilaginous bones and muscles of young children's feet.

The examinations showed four types. The first is the normal with toes flaring and the ball of the foot broad and straight across. In the second type the toes follow a graceful curve. In the third type the foot is long and narrow; and in the fourth type it is short and dumpy. The last two were rather rare in the series. Among 338 girls, 106 had flat feet of various degrees. There were 82 cases of cavus or high arch, including the contracted arches. Eighty-seven cases were classified as mixed, exhibiting a combination of flat-foot and cavus. Sometimes the right foot was flat and the left cavus, or vice versa. Eighty-seven cases could be classified as subnormal, with an arch nearly normal, and distorted toes, or the foot rotated inward or outward. Or, corns, calluses or bunions distorted the foot.

The feet of the negro girls were almost invariably flat. The North American Indian is said to have beautiful feet when in his normal environment, and wearing moccasins. An examination of 35 Indian girls at Haskell Institute showed that the American shoe is ruining the woman's foot. These deformities are associated with about all the ills of human kind. There were 3 Indian girls whose feet might be classed as normal and 1 of those may be called perfect. They were those of a girl five feet, five inches tall, weighing one hundred and forty-nine pounds, a full blooded Navajo. She has worn moccasins all her life until she recently came to the school. In the foot-print the second joints of the second and third toes show, which is exceptional. All the others had flat feet. Nearly all the girls complained of pain. The feet were nearly all very soft, the skin being comparatively free from callous, bunions and twisted toes.

(GOODMAN, H.: **Epidermophytosis of the Hands and Feet.** (Epidermophytosis Pedum et Manuum). *Archives of Dermatology and Syphilology*, 1921, iii, 651.

The appearance of Arthur Whitfield's "Handbook of Skin Diseases and Their Treatment" provided an excellent impetus to abstract this subject to which the author's name has often been linked.

Eczematoid ringworm of the feet and hands (Epidermophytosis pedum et manuum) is described as a phase of Epidermophyton infection in which the disease has become localized, most commonly between the toes, but also occasionally on the soles, the fingers, the palms and the nails.

In 1892, ringworm was found in dermatitis of the soles by Djellaludin Mouktar, but Sabouraud says that the cases were not of the disease under discussion and Mouktar was of the opinion that the cases were of the eczema type on which a ringworm has become engrafted. In 1908, Whitfield found a series of cases in which the characteristic localization occurred, but he failed to find the fungus. At that time he pointed out that it was not sufficient to make the diagnosis of intertriginous eczema between the toes but it was necessary to examine scales and roots of vesicles in order to determine the presence or absence of the fungus. In 1910, Sabouraud, unaware of Whitfield's discovery, published an article on the same disease, and showed that it was due to *Epidermophyton inguinale*.

The characteristic localization of this disease is between the toes and up to the heads of the metatarsal bones. The eruption is marginal, but because of the complex arrangement of the toes, the circular outline is confused. Sometimes it may burst out as an apparently acute eczema with swelling and marked vesicles and bulla formation; at others, it may show as an indolent scaling with a few deeply seated vesicles at the edge. The clefts between the toes show a white sodden horny layer, and a distinct margin runs in a more or less wavy line along the level of the heads of the metatarsal bones. Sometimes, ill-defined patches of vesicles and scaly dermatitis are present on the sole, especially the hollow of the instep. The hands are affected in a manner similar to that of the feet. When the nails are affected which is much less frequently the case, the brunt of the attack falls on the nail bed which develops a brownish hyperkeratosis so that the nail plate is lifted off of it. The nail plate itself may become reedy, discolored and friable. Whitfield is not certain whether actual invasion of the plate itself occurs as it is difficult to be certain whether the fungus found in scrapings lies in or on the nail plate.

Septic infection is common, and lymphangitis may occur, so that some patients have been treated for years for gout and gouty neuritis. The disease often becomes latent in cold weather, resuming activity in hot and moist weather when sweating occurs, so that there is a more or less seasonal variation giving rise to diagnosis of dyshidrosis.

The contagiousness is capricious, one patient having had the disease for over two years in one foot before the other became infected, although from ignorance as to its nature no active precautions had been taken.

When the infection has reached the toes the problem of treatment is difficult. The thick horny layer between the toes and the soles of the foot renders it almost impossible to get the parasiticide in contact with the fungus. Great care should be taken to trim away all flaps of fringed skin and to remove the roots of any vesicles or pustules. Recent cases are much more easily cured than old established cases, and generally yield to ten days treatment with chrysarobin ointment. In the treatment of old cases, Whitfield has used this method: The skin after trimming is painted with this solution: Chrysarobin, dram 1 (3.75 c. c.) sulphuric ether and acetone each, drams 4½ (16.88 c. c.).

This is allowed to dry and then a pair of cotton socks are put on. In the evening the solution is washed off and the feet dressed with: Benzoic acid, grains xxv (1.62 grams); salicylic acid, grains xv (.972 gram); soft paraffin, drams ii (7.50 c. c.) and cocoanut oil, ounce i (30 c. c.).

This does not stain the bed clothes, but softens the epidermis. Next morning this is washed off, the skin trimmed again and the paint re-applied, after which a second pair of socks is put on while the first is being boiled. Even with this treatment the case may persist for months.

Another method that has occasionally been found useful is to soak the feet for ten minutes in a two per cent watery copper sulphate solution and then without drying, to transfer then to a 1:20 dilution of the U. S. P. aqua ammoniac fortior, thus making ammonio cupric sulphate in the horny layer.

MEEK, W. J., AND EYSTER, J. A. E.: **Reactions to Hemorrhage.** *American Journal of Physiology*, 1921, lvi, No. 1, p. 1.

It has been long recognized that after any considerable loss of blood, blood fluids enter the circulation to restore volume. With blood-pressure reading it was found that the vasomotor center tends to bring about "a general constriction of the peripheral blood-vessel, which compensates for the decreased viscosity of the blood and diminishes the capacity of the circulatory system so that blood-pressure may be maintained and an adequate supply of blood furnished to the central nervous system and other vital organs". The larger arteries passively accommodate themselves to the decreased volume. Arterial blood-pressure remains practically constant until an amount of blood equalling from 2 to 3 per cent of the body weight is lost. The decreased vagal tonus increases the pulse-rate in advancing hemorrhage. Sooner or later the curtailment of venous return and the interference with diastolic filling of the ventricle must decrease the cardiac output. Johansson and Tigerstedt showed that the heart empties itself more completely after hemorrhage.

The author studied the effect of successive small hemorrhages on the diastolic size of the heart as determined by the x-ray, the cardiometer, the arterial and venous manometers. For this purpose dogs

were morphinized. The cannula for bleeding was placed in the femoral artery. Bleeding rarely lasted over one minute. X-ray plates were made before, during and at intervals after the hemorrhage. They gave the diastolic shadow of the heart. For comparison they were measured with a planimeter. The chest was opened under artificial respiration after the dogs were morphinized and etherized. Venous pressure was determined by inserting a sound into the vena cava through the femoral vein. The x-ray photographs of the heart before and after hemorrhage showed contrary to often expressed opinions, that the diastolic size of the heart is maintained after the loss of large quantities of blood. In twenty-one experiments, each with from two to six hemorrhages, the heart did not decrease more than 5 per cent, until the loss of blood on an average equaled 2 per cent of the body weight. This, in the dog, represents a loss of from 11 to 28 per cent of the blood volume. "The steady decrease in blood volume is sharply contrasted with the sudden reduction in diastolic heart size which occurs when about 20 per cent of the blood is lost, and which would seem to indicate the break-down of some protective mechanism."

How the heart secures a venous return adequate and under sufficient pressure to maintain the normal distention of the ventricle is hard to explain. It is not due to any change in pulse-rate. Hemorrhage is known to increase the heart-rates after considerable loss of blood. In the experiments no significant change in heart rate occurred until a sudden decrease in cardiac size occurred. "To favor the heart in retaining its diastolic size the rate would have to decrease along with the loss of blood". After the loss of large amounts of blood the pulse is greatly accelerated. This acceleration often occurs with marked decrease in diastolic size of the heart; sometimes the decrease of cardiac size is not associated with increase of pulse-rate.

In another series it was found that during and immediately following small hemorrhages amounting to less than 1 per cent of the body weight, the cardiac output per minute is constant, and systolic, diastolic and pulse-pressure are usually slightly decreased. Recovery to normal is generally complete within a few minutes. After the first bleedings there was often a tendency to raise systolic pressure at once or during the next few minutes. Later a slight fall of systolic pressure with prompt recovery occurred. At a certain stage

of hemorrhage there is some kind of a circular reaction which causes constriction of the venules and capillaries in the skin. The indications are that the response is active. The authors sum up as follows. In the intact animal hemorrhage amounting to about 2.1 per cent of the body weight is necessary before the diastolic heart size and presumably the output is reduced. In the unetherized animal with open chest, the minute volume output is maintained, with the exception of a slight drop immediately after bleeding, until the total hemorrhage equals about 1.2 per cent of the body weight. The only satisfactory explanation seems to be that the effective circulation is kept up by constriction of venules and capillaries, particularly those which have been more or less stagnant. When hemorrhage in the intact animal reaches about 2 per cent of the body weight, the venules and capillaries of the ear may be seen markedly to constrict. Since such a mechanism is thus shown to exist, it becomes probable that it may have been operating in various parts of the body in earlier stages of the hemorrhage and that in this way there was provided a constant venous return and cardiac output even though the blood volume was decreased.

MILLER, E. M., AND HERBST, R. H.: **Papillary Epithelioma of the Kidney Pelvis.** *Journal of the American Medical Association.* April 2, 1921, lxxvi, No. 14, p. 918.

Incidence.—From an analysis of the cases thus far recorded papillary epithelioma is more common in the male than the female in the proportion of about 2 to 1. Nearly one-half occur between the fiftieth and sixtieth years, about one-fifth between the fortieth and fiftieth years; and one-fifth between the sixtieth and seventieth years.

Etiology.—The etiology is not known. It is possible that irritation, such as from a calculus, or chronic infection, might be a predisposing factor.

Pathology.—These tumors vary in size from multiple, small, bud-like, growths to a single, large, cauliflower-like mass filling the renal pelvis and producing, as it grows, destruction of the kidney parenchyma. The condition is usually unilateral. The tumors arise, as a rule, from the lining of the pelvis of the kidney. Histologically, they resemble papillomas elsewhere in the urinary tract, the covering

of the vascular connective tissue stalk being either a tall or short, oval cylindric or club-shaped epithelium. They tend to bleed readily and the clots may form obstruction in the urinary tract. There is a striking tendency to involve secondarily either by direct extension or, by implantation, the lower urinary tract.

Symptoms.—Hematuria is the most common symptom and is usually intermittent in character. It may vary from a slight cloudiness of the urine to a copious hemorrhage. Clots are frequently passed and when of sufficient size may obstruct the ureter or urethra. Pain is inconstant. It may be a mild bladder irritation, a steady ache in the kidney region, or a severe colicky pain similar to that seen with ureteral stone.

Diagnosis.—The presence of papilloma should be kept in mind in all cases in adults when intermittent hematuria is noticed, especially when associated with pain in the kidney region. It should be strongly suspected if the roentgenograms being negative for stone, there are: (1) colicky attacks of pain radiating along the course of the ureter; (2) diminished or absent function of the suspected kidney; and (3) a palpable tumor mass in the loin. If cystoscopy reveals a papilloma in the bladder or ureteral orifice, the urine contains unidentified epithelial cells, and the pyelogram portrays a filling defect in the kidney pelvis, the presence of a papillary tumor is practically certain.

Treatment.—The treatment in these cases may be divided into two groups. In those with bladder involvement complete removal of the kidney and ureter followed by fulguration of the bladder mass is the only treatment that will suffice. In those with only kidney involvement removal of the affected kidney and entire ureter is indicated.

R. H. BENNETT.

REID, W. D.: *Visceroptosis as a Cause of "Stomach Trouble"*. *Boston Medical and Surgical Journal*, June 16, 1921, clxxxiv, No. 24, p. 628.

While visceroptosis has received its share of attention from internists, nevertheless many cases are not diagnosed, especially that type where the patient comes for relief from so-called "stomach

trouble". A lack of good physical development and the appearance of carrying themselves in the "posture of fatigue" is typical of individuals with visceroptosis. Malnutrition is also associated with this disease. Stomach trouble of all sorts and a state of neurasthenia are always present. The diagnosis depends upon the history, physical examination, laboratory tests, and roentgen ray examinations, to eliminate all other organic causes of the stomach trouble. Treatment should be directed toward the mental condition of the patient, toward his nutrition, and finally to his mechanical handicaps. Constipation which is usually present should be combatted. These patients should receive a high caloric diet and should be made to put on weight. Some form of mechanical support to the sagging abdominal wall is always necessary. The patients should be taught how to walk and stand properly and in the more severe cases it is advisable to have them recline for an hour after meals in a posture which relieves the downward drag of the abdominal organs. Two positions which the author recommends are: lying on the back with a pillow under the hips, and none under the head, and with the knees flexed; and lying prone with a pillow under the lower abdomen.

M. M. BANOWITCH.

COHN, A. E.: **The Effort Syndrome Together with a Consideration of the Significance of Certain Murmurs.** *Medicine and Surgery*, Feb., 1921, xlviii, No. 2, p. 286.

The views on the significance attached to diastolic murmurs, both the diastolic murmur of aortic insufficiency and the presystolic murmur of mitral stenosis, have remained the same, while those on systolic murmur have changed. Systolic murmur occur in a large number of individuals, but in a few are important, and denote mitral insufficiency. Early in the war men with such murmurs were accepted and many were found, after severe service, to bear the fatigue incident to campaigning satisfactorily. All murmurs are in a sense organic: the distinction of functional and organic is not correct. Posture, position and character, respiratory emphasis, transmission and position in the cardiac cycle give no clue as to the murmur's importance. It is more important to note the size of the heart, the history of infection, especially of rheumatism, the intensity of the

second sound in the second left interspace or third left costochondral junction, and the reaction to exertion. If the size is normal, and there is no history of rheumatism or infection, if the second cardiac sound is not accentuated, if the response to a standard exercise test is normal, even though systolic murmur is present, a candidate may be accepted for Army service.

The heart is normal in size in adult males in civil life in the third decade, when in the oblique position it measures from 9 to 11 cm. (3.54 to 4.3 inches). In active military service the size often increases to 11 or 13 cm. (4.3 to 5.1 inches) and is considered normal. The measurements are based on *x*-ray plates. Not all normal hearts have this oblique position in the chest; it may be more vertical and in the midthoracic position. They make the diagnosis of hypertrophy difficult. Under rheumatism the author includes acute rheumatic fever, chorea, torticollis, tonsillitis, growing pains. It is believed to be the rule that after long-standing disease an accentuation of the second sound takes place.

The test recommended in Circular 21 S. G. O. consists in hopping 100 times on the left foot so that the shoulder is elevated from 4 to 6 inches. Two minutes after the end of this exercise the ventricular rate should return to within 10 beats of normal and the blood-pressure to normal. This test is useful if the heart is barely enlarged and a history of repeated and recent rheumatic fever attacks are reported. As an indication of the position of the left border of the area of cardiac dullness in estimating hypertrophy, the location of the apex, especially its furthest extension to the left, is valuable.

Of greater importance is a symptom complex, functional in nature and common in war, that is the "irritable heart of soldiers." Thomas Lewis called it "effort syndrome". The affection is characterized principally by breathlessness, giddiness, fatigue, pain in the chest, often in the region of the precordium, and palpitation. On examination are found, an anxious facies tremor, or shakiness of the fingers alone or of the extremities or even of the whole trunk, cyanosis, sweating, skin hypersensitiveness, both hyper— or hypoaesthesia (heart zones), tachycardia. On questioning one learns of headache and unpleasant dreams at night. Many of the symptoms suggest heart-failure of chronic valvular disease.

Not all these symptoms are present in the same patient; he may

complain of a single symptom. The most frequent according to Hume is pain in the chest, occurring in 763 of 1000 cases; breathlessness is next, then giddiness, palpitation, precordial tenderness, fainting with or without loss of consciousness.

A test for mitral insufficiency has been made by Morrison and Lewis. They lay the patient in a recumbent posture and place a bell stethoscope at the site where a presystolic murmur is anticipated. The patient then inhales 3 minims (.18 c. c.) of amyl nitrite. During the first 10 or 20 beats the only change heard is an acceleration in rate; during the second 10 or 20 the anticipated murmur may appear. The effort syndrome is not associated with a disturbance in the rhythm of the heart.

Of some importance is the possibility of the disturbance of thyroid secretions. Symptoms associated with Graves' disease are in some respect like these found in the effort syndromes. The symptoms in common are nervousness, tremor, and tachycardia. In the effort syndromes, exophthalmus or thyroid enlargement are usually absent. There need be no diarrhea. Tachycardia may be absent. The tremor is more of a shake, and attains degrees never seen in exophthalmic goiter. In Graves' disease dyspnea may be present, and the size of the heart increased. The symptoms are more persistent than in the effort syndrome. Many cases of gassing show the effort syndrome. Both syndromes develop nocturnal asthma. They have been found in polycythemia as well.

Treatment.—The patients should not be collected in hospitals, but put into camps under suitable medico-military discipline. Occupy their minds. The accessory nasal sinuses, teeth, tonsils, and ears should be tended to. Arrange physical exercises, such as drills, farm or garden work, or games, in a grade of sequence.

BARRINGER, T. B., JR.: **The Etiology of Heart-failure.** *Journal of the American Medical Association*, April 23, 1921, lxxvi, No. 17, p. 1143.

A table was compiled from the records of the Second Medical Division of the New York Hospital and from those of the House of Relief, which included all cases of heart failure complicating chronic valvular disease and chronic myocarditis with these exceptions: No

patient who remained in the hospital less than three days, no patient who had any complication that might cause fever, no patient who gave a history of syphilis or showed a positive Wassermann test, and no patient in whom a diagnosis of acute endocarditis was made was included in these tables.

There were 117 patients with valvular disease and 37 patients with myocardial disease, making 154 patients with chronic heart disease. Five patients gave a history of physical strain immediately preceding the early symptoms, and two mental strain. In 18 patients the early symptoms followed directly some infection, like bronchitis or influenza. Of the early symptoms precordial pain was present thirty-five times.

One hundred and seventeen patients showed fever of varying degrees, running a course of from three days to many weeks. Sixty-nine patients showed an increase above normal of the polymorphonuclear leukocytes (blood counts were made in 134 cases).

Fever and leukocytosis in patients with heart-failure have generally been considered to be due to the pulmonary congestion or the general venous congestion. The author however believes that the fever and leukocytosis is due to an infectious process in the heart itself. A few patients observed from the beginning of the attack showed fever very early before there was any marked evidence of venous congestion. Some patients ran their course with minimum evidences of congestion and yet showed fever for days. In many patients improvement was coincident with the disappearance of the fever. The fever and leukocytosis were not due to any complications, for all patients with complications were excluded. That 75 per cent of the patients showed fever and 51 per cent of those in whom blood-counts were made showed a leukocytosis is important confirmatory evidence in support of the view that cardiac failure in the majority of instances is a disease of infectious nature in which the site of the infection is the heart itself.

R. H. BENNETT.

REID, W. D.: **The Auricular Heart Sounds.** *Journal of the American Medical Association*, April 2, 1921, lxxvi, No. 14, p. 929.

(1) The sounds produced by auricular systole are faint and may often be below the level of audibility.

(2) Systole of the auricles is marked by two sounds which are related to its initial phase and termination just as the first and second heart sounds are to the contraction of the auricles.

(3) As the contraction of the auricles is not sustained after the maximum tension has been achieved, the auricular second sound follows almost immediately on its first sound.

(4) The second sound produced by the contracting auricles, namely, that due to the closure of the auriculo-ventricular valves, occurs during the auriculoventricular intersystolic period.

(5) The filling of this intersystolic period by the auricular sound is suggested as a more reasonable explanation of the well-known fact that the auricular sounds are never detected save in cases of heart-block, when the auricular contractions may occur well separated from those of the ventricles.

R. H. BENNETT.

WEISS, S., AND HATCHER, R. A.: Tincture of Digitalis and the Infusion in Therapeutics. *Journal of the American Medical Association*, Feb. 19, 1921, lxxvi, No. 8, p. 508.

(1) Tincture of digitalis was prepared, the marc (the drug left in the percolator after extraction) of which was dried and used in the preparation of an infusion: this infusion was tested on cats and found to be inert, showing that all the active water-soluble principles of the leaf are extracted during the percolation for making the tincture.

(2) This method of testing the marc on cats affords a delicate means of testing the degree to which the active water-soluble principles are extracted during the percolation.

(3) There is no essential difference in the amounts of the saponin bodies present in the tincture and in the infusion prepared from equal weights of the leaf, and therapeutic doses of digitalis do not contain enough to induce any undesired effects.

(4) The official infusion (U. S. P.) does not represent the drug completely; hence the standardization of the leaf does not insure uniformity in activity of the infusion.

(5) The infusion prepared according to the method given below represents the activity of the leaf completely; hence it permits of uniformity when a standardized powder is used in the making.

(6) The method for making the infusions is as follows: 1000 c. c. (33.81 fluidrams) of boiling water is poured on 10 grams (154.22 grains) of digitalis in No. 60 powder in a flask or beaker, which is allowed to stand for one hour in a boiling water bath with frequent stirring, in order to expel the air from the cells, thus facilitating extraction, water being added to replace that lost by evaporation; the infusion is cooled and filtered through paper.

(7) An infusion of digitalis prepared in the manner recommended, and kept in completely filled and hermetically sealed bottles for more than two years and five months, retained its activity unimpaired, as shown by the results on cats and by the therapeutic effects on man.

WEDD, A. M.: **Paroxysmal Tachycardia, with Reference to Nomo-
topic Tachycardia and the Role of the Extrinsic Cardiac Nerves.**
Archives of Internal Medicine, May, 1921, xxvii, No. 5, p. 571,

Six cases of paroxysmal tachycardia are described. In 2 there were signs of degenerative changes of the heart and aorta. The paroxysms were believed to be due to the presence of irritable foci in the walls of the hearts. A third case was associated with visceroptosis and alimentary stasis which seemed to have a direct relation with the paroxysms. In the 3 remaining cases there was no evidence of organic heart disease or of hyperthyroidism. From a study of the curves and a review of the literature of the subject Wedd concludes that there may be such a thing as a paroxysmal tachycardia arising in the normal pacemaker and that it has at least never been disproved that such paroxysms may be of purely neurogenic origin.

T. HOWARD.

BROOKS, H.: **Syphilis of the Heart.** *American Journal of Syphilis*, 1921, v, No. 2, p. 217.

The author, in 1911, in one thousand consecutive protocols was struck, as many others have been, with the frequency with which syphilitic changes were found in the heart. He selected 50 autopsy cases of unquestioned syphilis, making a study of cardiac lesions,

macroscopically and microscopically. Forty-seven showed unmistakable changes in the heart and in over one-half the death had resulted from disease of the cardio-vascular system. Sixty-six per cent of the author's syphilitic cases, both well and incompletely treated, at autopsy were found to have died from serious circulatory defects. The heart is most frequently involved in most cases of lues. The myocardium may be swarming with specific organisms, where no microscopic lesions were detectable under ordinary methods. To find spirochaetes the tissues must be fixed within a few hours after death. Yet there are many cases of active lues in which probably no typical luetic changes in the heart are present. Clinically a distinction must be made between the heart in syphilis and syphilis of the heart. In the series of 50 cases of lues, in five instances the heart muscle lesions were apparently due to secondary changes outside of syphilis. The heart muscle was often involved in such cases, but in many instances the muscle changes themselves were not specific though perhaps due to primary luetic alterations in other tissues, as for example, to a coronary endarteritis. The distinction is necessary for prognosis. In acute syphilitic lesions rapid relief may be usually promised under modern therapeutic measures. If the lesions are not elementarily luetic, even though acute and directly secondary perhaps to luetic lesions, the prognosis even under specific treatment is bad.

The author does not attach as much importance to syphilitic aortitis as has been done by many, for he and Carroll have found that many or most of the symptoms ascribed to it are due to concomitant syphilitic disease of the heart. They have been able to demonstrate syphilitic cardiac lesions, especially in the muscle and in the coronary system in all these cases. Dyspnea, tachycardia, precordial pain, arrhythmia and lassitude are not easily explained on the basis of a pure aortic lesion, and the therapeutic success reported in syphilitic aortitis must be ascribed to improvement of the heart. Literature shows no demonstrable healing of syphilitic aortæ.

Twenty-four cases occurred during the secondary period of the disease. Two patients died with a confirmation of diagnosis at autopsy, and twenty-two recovered under specific treatment. One patient died of acute cardiac dilatation while on the witness stand in court, and one as the result of a perforation of one of the aortic sinuses before the secondary rash had appeared. Arrhythmia and tachy-

cardia, and cases of acute pericarditis and apparent early endocarditis of the aortic valves have been observed in the early stage and have been rapidly and completely cleaned up by specific treatment. As a rule it is not noticed until well into the tertiary stage.

Out of 300 cases studied for this purpose, 276 did not come under observation until late in the third stage. It appears that the involvement of the heart "begins with the general septicemic stage, progresses with the development of the secondary rashes and continues just as long as any phase of the disease in any of the tissues, that is, until cure, stabilization or death has taken place". The earlier syphilis comes under proper treatment the less danger there is from cardiac lesions. They may develop at any age of life, and there seems to be an intimate association between them and involvement of the central nervous system. The changes in the heart are almost always diffuse, the muscle being most frequently involved and the tendency in distribution being to follow the blood-vessels. Gummata may, however, be very large and cause rupture. The lesions may involve the pericardium, the myocardium, the endocardium and the conus arteriosus. The most frequent lesions, located for the greater part in the myocardium, apparently originate or progress about the terminals of the coronary system. Any form or stage, excepting chancre, may be found in the heart.

"The signs and symptoms of syphilis of the heart are simply those resulting from the particular lesion present and often develop few or no definite clinical characteristics aside from their association with the history of infection, the Wassermann reaction, and the relief of symptoms and signs under specific treatment."

Ordinary cardiac therapeutics without specific medication fail.

"Diagnosis rests chiefly on a history of infection, concomitant signs of it in other tissues, the positive Wassermann reaction, and notably on relief under specific treatment."

VAN DEN BELT, Z. H. A.: **Silversalvarsan Natrium** (Over Zilver-salvarsaan Natrium). *Nederlandsch Tijdschrift voor Geneeskunde*, March 19, 1921, lxx, 1st. half, No. 12, p. 1561.

The advantage of this preparation over the older ones lies in its being stronger and quicker in taking effect, in that there is less danger

of intoxication, and that there is an introduction of a metal (silver which in itself kills spirochaetes. The combination of mercury-salvarsan is retained and intoxication plus mercury nephritis is caused. Mercury can be dropped in silver salvarsan therapy. The sequelae are rare. There is a more ready and more lasting reaction to the Wassermann, Meinicke and Sachsse tests. The author treated 22 patients with 300 injections. Most of them were ambulatory. He has also used neosalvarsan and mercury, but finds silver-salvarsan much more satisfactory. After the administration of 50, or at the very most 100 mgs. (.77 to 1.54 grains), the spirochaetes primary effects and condylomata always disappear. Also in those patients who retained resistance after mercury treatment chancre and the secondary symptoms were influenced quicker than by other methods. The author has seen headache and stupor disappear after a dose of from 50 to 100 mgs. Hardness of the chancre is lessened. An untreated patient in the tertiary stage with deep gummatous ulcers of the glans penis, gummatous periostitis of the thigh and severe headache was cured in two weeks.

The author proposed to give an abortive treatment of the primary symptoms during the second to fourth weeks, while blood reactions were still negative, the diagnosis being based on the finding of spirochaetes. On the first and third days 100 mgs. silver salvarsan are given, and 200 mgs. (3.08 grains) on the fourth and fifth days, the total amounting to about 2 grams (30.86 grains). If the Wassermann test remains negative and the chancre grows softer, cure can be considered effective. Blood-tests are then made regularly for three months. If the reaction becomes positive for a time, a second treatment may be given during four to six weeks after the first.

In the secondary stage two treatments are given with a total each of from 2 to 3 grams (30.86 to 46.30 grains), and an intermission of from four to six weeks.

CHARGIN, L.: Antisyphilitic Therapy. A Comparative Study of Some Intensive Methods. *Journal of the American Medical Association*. April 23, 1921, lxxvi, No. 17, p. 1154.

Methods of Study.—To conduct the study properly it was necessary to choose (a) patients with recent infections, and only such as

presented the early cutaneous manifestations of the disease, and (b) cases with strongly positive Wassermann reactions. This served the double purpose of corroborating the diagnosis, and as the criterion of the efficacy of the various plans of treatment which were experimented with.

Plans of Treatment. (1) The daily arsphenamin treatment consisted in the administration of three full doses of arsphenamin given on three successive days, and was followed by a course of six mercury injections given a week apart. The arsphenamin course was fortified by three additional injections at the end of the mercury course. Thirty-seven cases were treated by this method. This is the more intensive plan.

(2) Three or four arsphenamin injections were administered on alternate days followed by a course of six mercury injections, and this in turn by arsphenamin administrations, three, four, or five, a week apart or on alternate days. Nineteen cases were treated by this plan.

(3) The chronic intermittent method included the use of arsphenamin and mercury, which were given alternately, from six to eight arsphenamin and ten to twelve mercury injections constituting a course. The arsphenamin injections were given from five to seven days apart and mercury was given in the interval. There were 50 cases in this group.

Result of Treatment.—Comparing the figures from the first to the ninth week inclusive, the most satisfactory showing is made with Plan 1, which demonstrated that during the ninth week 28 per cent more negative Wassermann reactions were obtained by this plan than by Plan 2, and 17 per cent more than by Plan 3. Week by week after the ninth and up to the sixteenth the advantage is in favor of Plans 2 and 3 however. All three methods proved equally effective in causing a rapid disappearance of the clinical manifestations.

Plan 1 received an average of 1.9 grams (29.32 grains) of arsphenamin as compared to 2.34 grams (35.61 grains) in Plan 2, and 2.2 grams (33.946 grains) in Plan 3.

Practically like amounts of mercury were given in all three plans.

Conclusions.—(1) A study of 106 cases demonstrated that 80 per cent of the early syphilitic patients treated by modern intensive methods became negative by the tenth week; 98 per cent by the sixteenth week; and 100 per cent by the twentieth week.

(2) As a general rule the more recent the infection at the time the intensive treatment is begun, the sooner the Wassermann reaction becomes negative.

(3) Since the clinical and serologic results are practically the same by all methods described in this paper, it would seem best to use the less intensive plan as the margin of safety favors this plan.

R. H. BENNETT.

FINDER, G.: **Plaut-Vincent's Angina** (Die Plaut-Vincent'sche Angina). *Deutsche medizinische Wochenschrift*, May 20, 1921, xlv, No. 21, p. 577.

Angina ulcero-membranacea or Plaut-Vincent's angina has been occurring more frequently in recent years. There is generally not much general disease, and temperature rarely high. In the angle of usually one jaw there is a painful glandular swelling. A grayish-white membrane covers the tonsils, and is soon shed. An ulcer is then seen to lie beneath it, the edges of which are irregular. Its base is necrotic and dirty. This is usually the moment when the patient consults the doctor, on account of painful deglutition.

The general health is impaired and fetid breath is troublesome. Ulceration may spread to the soft palate, more rarely to the mucous membranes of the mouth and pharynx, gums, uvula and cheeks. The author thinks that these cases ought to fall under the head of noma.

Prognosis is favorable. Usually the disease is healed in a few days or in two or three weeks without leaving any traces, excepting some obstinate cases, where ulceration may last many weeks. Generally there is an involvement of the gums, which is diffuse and ulcero-membranous. There may be but a slight marginal gingivitis, which can be distinguished from pyorrhea by the absence of pus.

Differential diagnosis is clear in diphtheria, if cultures are made. Furthermore Plaut-Vincent's angina is mostly on one side only, the temperature is low, and general health fair. The diagnostic differentiation from lues is more difficult, and in fact both may coëxist. The smear must be stained with a solution of methylene-blue or diluted carbol fuchsin. Spirochetæ and fusiform rods are characteristic of Plaut-Vincent's angina.

It is hard to decide whether two microorganisms act together to cause a disease, or whether the fusiform bacilli are a step in the development of spirocheta, or whether spirocheta is the same as *Spirocheta dentium* or *Spirocheta buccalis*, or it may be a separate bacillus. Gerber does not consider the disease a separate entity, but a type of ulcero-membranous angina, similar to those of scorbutus, stomatitis, gingivitis, etc.

The author uses salvarsan or neosalvarsan intravenously, or even more effectively locally, preparing it with glycerin, or spraying salvarsan on the ulcer.

JOLTRAIN, M. J.: **Urticaria from Fatigue and Colloidoclasia** (Urticaire par fatigue et colloidoclasie). *Bulletin et memoires Societe Medicale des Hopitaux de Paris*, March, 1921, 3rd ser., A. xxxvii, No. 9, p. 330.

Widal, Abrami and Brissaud have given the name of colloidoclasia to a lack of equilibrium in the colloidal metabolism. One of the most frequent signs noted is urticaria. If heterogenous substances are introduced into the system a shock is produced. One of the frequently known consequences is alimentary urticaria, in the course of which the authors have seen vasculo-sanguinary characteristics of shock. Aside from urticaria produced by foreign proteins, there are cases occurring independently from the action of foreign substance. It may arise in the course of paroxysmal hemoglobinuria in "frigore", in the course of which urticaria is common. Under the influence of cold the colloid sanguine equilibrium is disturbed. The author has seen these same conditions under the influence of fatigue and exertion. The patient studied in this publication was a woman of 32 years of age, who had suffered from general urticaria, since she was 12 years old, several times a week. The accompanying intense pruritus caused the patient to scratch and ulceration was produced, which contained staphylococcus albus. The disease had followed measles. She suffered from constipation, at rare occasions from diarrhea, slow digestion, and sometimes from nausea and vomiting. She was of the opinion that certain grease, chocolate and eggs produced urticaria. When the spells came on at night they were accompanied by suffocation and always by pruritus.

Radioscopy revealed the colon doubled on the cecum and adherent in the region of the appendix. There was ptosis of the stomach, which pointed to the right iliac fossa.

Tachycardia on effort and some extrasystoles were noted.

A number of experiments showed hemoclastic shock on taking a meal rich in fat and albumen. There was a decrease of white globules and a considerable lowering of the refractometric index. This seemed to indicate that the patient had not absorbed fluid from a dilution of the blood, a metabolic process in the albumen metabolism. But repeated experiments did not confirm the impression that these food-stuffs were at fault. The author one day noticed that after a fast of 24 hours, and having been excited lest she should be late at the office, there were urticaria patches on the patient's skin. The patient was questioned and said that she sometimes noticed them when playing golf or tennis, or after running.

Experiments carried on in this direction resulted in: white blood corpuscles 4,000, arterial pressure 13.9, temperature 38.6° C. (100.7° F.). Urticaria was found on calves, arms and chest, and later the face, which showed a reddening like scarlet erythema. There was dyspnea without stethoscopic findings. The temperature was 39° C. (102.2° F.). Urea was present in the blood, also traces of urobilin and albumin. The patient was much fatigued, as she always was when urticaria set in.

Pilocarpin injections produced abundant perspiration but did not relieve hemoclasia nor urticaria.

Experiments with the patient lying in bed, and lifting her arm 20 times with a weight of 500 grams (1.12 lbs.) produced the same conditions as did walking.

NORMAN, N. P.: **A Modern Method of Colonic Drainage.** *American Medicine*, May, 1921, xxvii, No. 5, p. 248.

The author attributes many of the ills of the colon and the small intestines to the recency of the upright postural habit in man. The transverse colon, being placed horizontally is in the normal position, but the rest of the intestine is arranged in a manner that the intestinal contents have to be forced upward. In many cases the colon has been ptosed, forming a V- or U- flexure, which in turn creates a more acute angle of flexure at the hepatic and splenic flexures.

A child is born without bacteria, but in a few days the intestines swarm with them, entrance being effected through mouth and anus. Putrefaction and fermentation ensue. Lactic acid fermentation, which is chiefly carried on by the *bacillus acidophilus*, maintains a restraint on the harmful activity of the putrefactive and butyric acid forming bacteria. Untended teeth, in a single night will produce enough bacteria to kill us. Indigestion, flatulency, constipation, etc., set in, the gall-bladder may be infected, over-eating, especially of meats, fish, eggs, and all highly putrescible proteins leave heavy digestive residues. Infection and improper diet cause intestinal stasis and the colon is overloaded with food remnants, and sagging of the gut, kinking or damaging of the ileocecal valve, disease of the appendix and ulceration are the consequence. Then putrefactive ptomaines are directly absorbed into the abdominal cavity, the lymphatics and the circulation.

In some cases nothing but surgical treatment can be advised, but there are many others which may be aided by a clean mouth, tonsil and nose hygiene, a diet low in putrescible proteid, high in starches, vegetables, and fruits and sugars of the lactose variety. No laxatives containing *cascara sagrada* must be taken, no alcohol, but much exercise, injection of *bacillus acidophilus* must be avoided. The medication must be symptomatic and autogenous vaccines should be used.

The colon tube three feet long and about $\frac{3}{4}$ of an inch in diameter is inserted past the sphincters and water is introduced into the colon. As soon as the patient complains of being uncomfortable, the valve is turned so that the water from the reservoir is cut off but allows the siphoning of the water from within the colon into a waste jar. Then the water is again sent through the colon. To avoid peristalsis the water is kept at a temperature of 36° C. (96.8° F.). The tube must not be forced, but the intestine ballooned with water. If you reach the splenic flexure the water temperature should be increased to 50° C. (122° F.). The kinks cannot be smoothed at the first session nor can all flexures be reached in the beginning. After the colon has been drained a culture of *bacillus acidophilus* is introduced.

In extreme cases of toxemia, great mental and physical depression from the lack of stimulation of ptomain will occur after drainage. But it soon improves and a radical metabolic change takes place.

PELS-LEUSDEN: **Hydrocele** (Die Hydrocele). *Medizinische Klinik*, March 13, 1921, xvii, No. 11, p. 305.

Hydrocele is an accumulation of fluid in the remnants of the processus vaginalis peritonei. This shows that hydrocele does not only occur in the prostate, but wherever there are such remnants, and that the fluid accumulation in the scrotum, ligamentum rotundum, etc. must be clearly distinguished from the above. Hydrocele of the testis is the most frequent. The explanation is that the tunica vaginalis propria regularly remains as a remnant of the processus vaginalis peritonei. The testis has five tunicae, and it is in the fourth, the tunica vaginalis propria, that hydrocele develops. It is in close relation to the lymphatics. Many children have one or two hydroceles when they are born. Usually they disappear after the pressure from birth accidents is relieved. Trauma, according to most authors, constitutes etiology in from 25 to 50 per cent. In these cases hemorrhage is found in one of the tunics. Phimoses, epithelial adhesion, pedunculated hydatids, remnants of old inflammations, and hypertrophy of the tunics play a considerable etiological part. The fluid is usually clear and contains much albumen, blood-clots and sperma. There are furthermore hydrocele funiculi spermatici, hydrocele ligamenti rotundi, hydrocele bilocularis, and hydrocele communicans.

The differential diagnosis must consider hernia and tumors.

Probable causes must be removed, such as the pasting together of the epithelial layers of the prepuce in small children, phimosis, balanitis and gonorrhea. The flaccid hydrocele of small children often disappears spontaneously. If not it is expedient to puncture them by inserting the needle superficially in the front part of the sack. Repeated plain puncturing may suffice. From one to ten c. c. of a 10 per cent solution of iodine may be used. The scrotum is washed with hot water and soap, and shaved. The site of puncture is disinfected by a 10 per cent iodine solution. A large blister is produced by application of a 1 per cent novocain-suprarenin solution. Then a trocar is inserted to evacuate the fluid. If the hydrocele should contain sperma, it is liable to reform. In such a case it is not prudent to cause changes by injections, which might be detrimental for the anatomical conditions, for a subsequent operation is probable to become necessary. If the fluid is clear, evacuate completely, taking care not to change the position of the trocar. First

from 2 to 20 c. c. of a 1 per cent solution of novocain-suprarenin is injected. Then an intermission of five minutes is made. During this time complete anesthesia occurs by means of resorption. After this the painful injection of 10 c. c. tincture of iodin is well tolerated. Anesthesia will continue for some hours. Recurrence of hydrocele will often occur. The effect produced by these injections is an inflammation, which causes exudation and subsequent resorption and pasting together of the two layers of the tunica vaginalis propria.

Volkman evacuated the fluid, sewed the layers together, and had the same results. Bergmann removed the outer layer. Storp and Klapp split the tunica; Winkelmann makes an incision.

GRAY, E. A.: **Spontaneous Pneumothorax.** *Journal of the American Medical Association*, April 23, 1921, lxxvi, No. 17, p. 1147.

Spontaneous pneumothorax is a not uncommon complication of pulmonary tuberculosis.

Symptoms.—The occurrence of spontaneous pneumothorax is usually accompanied by pain, dyspnea and rapid pulse. Cyanosis soon appears in a degree corresponding to the reduction in the amount of functioning lung tissue. Soon after the rupture, infection of the pleural cavity is likely to occur, together with the temperature and pulse of empyema.

Signs.—The chief sign is absence of breath sounds with dislocation of the heart toward the uninjured side and marked tympany all over the affected side except in the case of a partial pneumothorax with broad adhesions. Marked limitation of motion will be observed on the affected side. If the pneumothorax is old, it may present a serothorax or pyothorax.

The succussion sound may be easily heard at some distance from the patient.

It may be necessary to differentiate between a large cavity and pneumothorax. In the case of pneumothorax the heart is dislocated to the unaffected side while in the presence of cavity the heart is drawn by adhesions toward the affected side. In the larger cavities also one finds râles, clicks or amphoric phenomena while there is silence over the pneumothorax.

Treatment.—As to treatment much depends upon the functioning

power of the good lung. If it is in good functioning condition, one may await developments. If the "good" lung is seriously damaged it may be necessary to proceed to aspiration of the pneumothorax. When the pneumothorax has existed for only a short time there is no danger in aspirating a large amount of air.

Aspiration of air in old cases is dangerous because of the positive intrathoracic pressure which has been maintained for a long time. Symptoms of distress may appear; these are nausea, weakness, sudden coughing, and a sense of pressure under the sternum.

Because of the lengthy course of a pneumothorax frequent observations are necessary. After a time, the return of respiratory sounds may be heard. Should the history show that tuberculosis of the injured lung existed prior to the pneumothorax, a continuation of the pneumothorax is advisable; especially is this true when the opposite lung functions in a proper manner. The lung collapse is maintained by the introduction of sufficient nitrogen from time to time.

After-results.—The cases may terminate with bronchopneumonia of the good lung; the patients may succumb to the excessive intrathoracic pressure; they may recover spontaneously. In the latter event the ultimate result will be a displaced lung, collapsed viscera, and a contracted chest.

R. H. BENNETT.

SECTION ON LABORATORY AND RESEARCH

OWEN, R. G., AND GREGG, R.: **Lactose -Determination of in Milk by Colorimetric Method.** *The Journal of Laboratory and Clinical Medicine*, Jan., 1921, vi, No. 4, p. 220.

The method used is simply an adaptation of Folin's latest blood sugar determination to the estimate of lactose.

Method.—To 1 c. c. of milk in a 100 c. c. flask add 2 c. c. of 10 per cent sodium tungstate and 2 c. c. of 2-3 normal sulphuric acid, the latter drop by drop. Mix and let stand for 5 minutes. Dilute to 100 c. c. and filter. The authors find that 2 c. c. each of tungstate and acid give clearer filtrates than where only 1 c. c. of each is used.

Place in a Folin special sugar tube 1 c. c. of filtrate and 1 c. c. of water, to balance water in tube; add 2 c. c. respectively of standards A and B to two other sugar tubes. To the unknown and the standards add 2 c. c. of copper alkaline solution and place in boiling water for 6 minutes. Place tubes in cold water till cooled, then add 2 c. c. of Folin molybdate phosphate solution and let stand a few minutes.

Dilute the three solutions to 25 c. c.; mix and read in the colorimeter, using that standard which most nearly matches the unknown and setting the standard at 20.

Standards.—Make up an accurate 1 per cent lactose solution in distilled water using purified lactose. The authors obtained their lactose from the Digestive Ferments Co., Detroit, Mich. Add a little toluol. This stock solution keeps well for several months. Standard 1, of which 2 c. c. contains 0.5 mg. (.077 grain) lactose is made by diluting 12.5 c. c. of the 1 per cent stock lactose solution to 500 c. c. Standard 2, containing 0.7 mg. (.1078 grain) per 2 c. c.

is made by diluting 17.5 c. c. of the 1 per cent solution to 500 c. c. Preserve these solutions with toluol and make fresh about once a month.

The standard reading divided by the unknown reading and multiplied by 5, if standard 1 is used, or multiplied by 7 if Standard 2 is used, will give the grams of lactose per 100 c. c. of milk.

Figures obtained by the above method of estimating lactose check very well with the Folin titration method. Moreover, lactose added to various samples of milk can be quantitatively recovered to within a few milligrams.

C. M. ANDERSON.

CUROINO, M.: **Milk as Transmitters of Tuberculosis** (O'Leite Transmissor da Tuberculose). *Brazil Medico*, 1921, a xxxv, No. 12, p. 145.

Transmission of tuberculosis by milk undoubtedly is a serious hygienic problem. In France the percentage of tuberculous cows varies from 41 per cent to 60 per cent; in England, about 50 per cent; in Germany from 40 to 60 per cent: In San Paulo there are about 10,000 milk cows and tuberculosis was found from 1890 to 1906 to be present in from 12.441 to 13.85 per cent; from 1907 to 1916 in from 18.37 to 20.71 per cent; and from 1917 to 1920 in from 22.95 to 30.9 per cent.

The author examined the milk which was sold at the capital. Acid-fast bacilli were found in the milk which had gone through the centrifuge. From the remainder at the bottom of the centrifuge tubes, 2 c. c. were inoculated subcutaneously or intraperitoneally. Fever ensued, and one of the experimental animals died after twenty-four hours and one after thirty-six hours. Autopsy showed infectious peritonitis in one case. In the other suppuration occurred at the point of inoculation.

In the pus Koch bacilli were found. In 22 experiments the author found that Koch bacilli in the milk were transmitters of tuberculosis. Bollinger, Nocard and others considered tubercle bacilli virulent where lesions of the mammary glands were found. Hirschberger, Bang, etc. claim virulence even where mammary lesions are absent. The author finds that milk from an infected gland will

contaminate the rest of the milk, and that the best of milk was infected. Tubercular lesions of the mammary gland are rare. Among 2280 cows which were submitted to the tuberculin test, only 8 had visible lesions of the mammae.

These findings show how erroneous is the advice to take unboiled milk.

LOURIA, H. W.: **The Blood Urea Nitrogen in Acute Intestinal Obstruction.** *Archives of Internal Medicine*, May, 1921, xxvii, No. 5, p. 620.

Seven cases of acute intestinal obstruction were studied from the standpoint of the blood chemistry and the findings of several previous investigators along the same lines were entirely substantiated. All cases showed an increase in blood urea nitrogen, varying from 54 to 170 mg. per 100 c. c. All were free from any evidence of chronic renal disease. In fact one patient with a urea N. of 130 mg. showed a simultaneous phthalein output of 58 per cent.

T. HOWARD.

FOOT, N. C.: **Studies on Endothelial Reactions. IV. The Endothelium in Experimental General Miliary Tuberculosis in Rabbits.** *Journal Experimental Medicine*, February, 1921, xxxiii, No. 2, p. 271.

This series of papers draws attention to the important part taken by cells, originating in capillary endothelium, in various types of inflammation. In earlier papers, the author demonstrated by injecting intravenously a colloidal suspension of carbon, that the cells forming the foreign body tubercles, as well as those found in lesions of experimental tuberculosis, were traceable to the endothelium of the neighboring capillaries. The present report describes the histogenesis of the cells forming the tubercles produced in rabbits by the intravenous injection of tubercle bacilli.

Rabbits were injected intravenously with 1 c. c. (16 minims) of a suspension of bovine tubercle bacilli. These same animals were vitally stained with Niagara blue and Higgin's waterproof ink dur-

ing a period of three days before the inoculation of the bacilli and again after that.

Lesions of the lungs, liver, spleen, omentum, and lymph-nodes were found and studied. The specific lesion of the miliary type was found to be composed chiefly of cells of endothelium origin, originating apparently from the walls of the small capillaries in the area. These cells are capable of forming the reticulum of the tubercles. The cells in the tubercle showed a marked affinity for carbon in colloidal suspension and no affinity for Niagara blue.

H. M. FEINBLATT.

CULPEPPER, W. L., AND ABLESON, M.: **Report on 5000 Bloods Typed Using Moss's Grouping.** *The Journal of Laboratory and Clinical Medicine*, Feb., 1921, vi, No. 5, p. 276.

There is at present one of two methods usually employed in typing blood, namely, that of testing the recipient's blood against the donor's directly, and the grouping method. The second method mentioned was the one used in this series of 5000 cases tested.

Moss's grouping is as follows:

Group 1.—Group 1 sera agglutinated no corpuscles. Group 1 corpuscles were agglutinated by sera of Groups 2, 3, and 4.

Group 2.—Group 2 sera agglutinated corpuscles of Groups 1 and 3. Group 2 corpuscles were agglutinated by sera of Groups 3 and 4.

Group 3.—Group 3 sera agglutinated corpuscles of Groups 1 and 2. Group 3 corpuscles were agglutinated by sera of Groups 2 and 4.

Group 4.—Group 4 sera agglutinated corpuscles of Groups 1, 2, and 3. Group 4 corpuscles were agglutinated by no serum.

Moss's investigations based on 1600 tests showed that 10 per cent of all persons belonged to Group 1, 40 per cent to Group 2, 7 per cent to Group 3, and 43 per cent to Group 4.

The authors' investigations showed that 5.18 per cent belonged to Group 1, 35.06 per cent to Group 2, 14.28 per cent to Group 3, and 44.48 per cent to Group 4.

They concluded with the view that without exception the entire 5000 sera could be grouped and classified according to Moss. There is a probability that types may overlap. A reaction in a recipient of blood from a donor of the same type may be explained by this

probable overlapping. Hemolysis is not specific for any one group. Positive Wassermann sera do not influence the typing reaction.

C. M. ANDERSON.

BROWN, W. H., PEARCE, L., AND WITHERBEE, W. D.: **Experimental Syphilis in the Rabbit. VI. Affections of Bone, Cartilage, Tendons, and Synovial Membranes.** *Journal of Experimental Medicine*, April, 1921, xxxiii, No. 4, p. 495.

The article is divided into three parts:—(1) Lesions of the skeletal system; (2) clinical aspects of syphilis of the skeletal system and affections of the facial and cranial bones and the bones of the forearm; and (3) syphilis of the posterior extremities with other affections of a miscellaneous type.

(1) Lesions of the skeletal system were a common occurrence in the series of rabbits inoculated with the *treponema pallidum*. Of the earlier animals 26 per cent of those showing manifestations of generalized syphilis gave evidence of lesions in the periosteum, bone, cartilage, tendons, and tendon sheaths and could be recognized by simple palpation and inspection. The parts chiefly affected were the facial and cranial bones and cartilages, and the bones, tendons, and joints of the feet, legs and tail. The lesions occurred in both the periosteum and in the deeper parts of the bone and cartilage and most instances were of periosteal origin. A number of lesions were seen which originated within the bone or marrow cavities forming what might be called osteitis, osteomyelitis, and epiphysitis or osteochondritis. These latter lesions were as a rule not detected clinically until the picture was complicated by necrosis and dissolution of bone or by pathological fracture. Secondary involvement of the tendons and ligaments as a result of direct extension of periosteal lesions were quite common.

Gross lesions were of two types, one being a circumscribed, indurated, and nodular mass and the other of a more diffuse nature. Invasion of the bone with absorption and necrosis were constant features of periosteal lesions and were most marked in the case of facial bones and the small bones of the feet. Histologically the lesions were typical of syphilitic granulomata.

Of special interest was the occurrence of mass necrosis which at

times resulted in the destruction of considerable areas of bone. The most characteristic injuries were the saddle nose deformities and the epiphyseal separation in the small bones of the tarsus and hind feet. Marks of permanent injury were on the whole slight, and differed with the degree of original injury and the bones affected.

(2) Bone infection was recognized in general by the development of visible or palpable enlargements on the surfaces of the bone, or, in the absence of these by rarefaction and the loss of structural detail as indicated by the radiograph. The diagnosis of these conditions as syphilitic was readily made by demonstrating the organism (spirochete) in the lesion. The most frequent locations of the lesions were the bridge of the nose, the end of the nose, and the bony ridge along the side of the nose, and the nasoörbital bridge.

Infections arising from the interior of the nose were characterized clinically by one or more of three conditions, —the presence of a nasal discharge containing spirochetes, necrosis of the outer covering of bone, and, finally, the development of external granulomatous lesions.

(3) In the cases of generalized syphilis, involvement of the posterior extremities was quite frequent and the lesions pronounced. The bones involved were the lower end of the tibiofibular, the tarsalia, metatarsals, and the phalanges. The periosteal and endosteal processes were involved and resulted commonly in epiphysical separation or pathological fracture.

Lesions were found by radiographic or pathologic examination which clinically gave no signs. Such were found in the interior of the nares and the small bones of the feet, and less commonly in the vertebral column, the cranial bones, the sternum, the ribs and the mandibles.

Primary tendon involvement was recognized in only a few of the cases all of which occurred in the tendo achillis. The lesions were usually small nodular, or fusiform masses which could be detected only by palpation. One case presented a visible enlargement on the outer side of the tendon over which the skin was freely movable.

The authors add 20 plates and 76 figures illustrating in detail the various lesions by photographs, radiographs and microphotographs.

H. M. FEINBLATT.

DAVIS, T. K., AND KRAUS, W. M.: **The Colloidal Gold Curve in Epidemic Encephalitis; A Preliminary Note.** *American Journal of the Medical Sciences*, January, 1921, clxi, No. 1, p. 583.

In 34 cases no definite relation was noted between the curve and the severity, duration, or clinical picture of the disease. In 41 per cent of cases, chemical changes, whether parenchymatous or meningeal, are present in the central nervous system which produce substances in the spinal fluid able to bring about an abnormal colloidal gold reaction. Abnormal curves are evidence of pathologic changes in any condition, and not of specific etiology. Clinical evidence, progress and symptomatology of each case must also be considered.

A. T. MAYS.

HANSEN, O. S.: **Magnesium Sulphate In Arsenic Poisoning.** *The Journal of Pharmacology and Experimental Therapeutics*, March, 1921, xvii, No. 2, p. 105.

Magnesium sulphate has prolonged the average life of a series of fifty rabbits poisoned by arsenic from 219 hours to 415 hours on the average, but cannot be said to have saved life in rabbits. Magnesium sulphate is toxic in large doses and to some extent in medium sized doses. There is a marked variation of individual susceptibility to arsenic poisoning.

C. A. SCHMID.

AMOSS, H. L. **Immunological Distinctions of Encephalitis and Poliomyelitis.** *Journal Experimental Medicine*, February, 1921, xxxiii, No. 2, p. 187.

The great difference in the communicability between poliomyelitis and encephalitis is considered by the author to be of capital significance. The seasonal variations of the prevalence, i. e., poliomyelitis in the summer and fall, and encephalitis in the winter and spring, is not so definite.

In a series of experiments efforts were made to determine whether the serum of convalescent cases of lethargic encephalitis can neutralize

the virus of poliomyelitis. Serum from recently convalescent cases of encephalitis was found to possess no power to neutralize the virus of poliomyelitis, whereas serum from a convalescent case of poliomyelitis possessed this property.

In summarizing, the author regards it as desirable to hold epidemic poliomyelitis and epidemic encephalitis as distinct affections: the first involves the cord chiefly and is easily communicated to monkeys by inoculation. The second, encephalitis, chiefly involves the midbrain and it is yet doubtful whether inoculation of the infected brain tissue has been successful in communicating the disease to monkeys.

H. M. FEINBLATT.

PARK, W. H., AND COOPER, G.: V. **Accidental Inoculation of Influenza Bacilli on the Mucous Membranes of Healthy Persons with Development of Infection in at Least One. Persistence of Type Characteristics of the Bacilli.** *Journal of Immunology*, January, 1921, vi, No. 1, p. 81.

Accidental inoculation of an 18-hour culture of influenza bacilli occurred in three persons and infection occurred in two out of the three.

Conclusions.—Freshly isolated Pfeiffer bacilli are capable of causing infection when transferred in great numbers to susceptible mucous membranes. Strains, recovered from infected persons at varying intervals after the accidental inoculation revealed agglutinative characteristics identical with those of the strains which had caused the infection. The varying periods cover the time from shortly after infection to convalescence. This is strong evidence that a strain responsible for an infection would reveal identical characteristics during infection and convalescence in the epidemic cases due to its invasion. If the epidemic was due to the Pfeiffer bacillus, we would expect the dominant strains to have similar type characteristics. The fact that just the opposite conditions exist is strong proof against the primary etiological importance of the Pfeiffer bacillus in epidemic influenza.

W. LINTZ.

SULLIVAN, M. X., STANTON, R. E., AND DAWSON, P. R.: **Metabolism in Pellagra: A Study of the Urine.** *Archives of Internal Medicine*, April, 1921, xxvii, No. 4, p. 387.

Patients were studied throughout their course of treatment at the Pellagra Hospital of the United States Public Health Service at Spartansburg, S. C. The findings seemed to substantiate the suggestion of Goldberger, Wheeler and Sydenstricker that the disease may be differentiated into at least two types: (1) a type with marked skin symptoms but with little physical degeneration; and (2) a type with slight skin symptoms but with profound systemic involvement. The abnormality in the urinary findings was greater for the systemic type than for the dermal type.

During the active pellagrous stage there was found a low phosphate excretion, in spite of the fact that the diet taken at the time was a generous one with an abundance of milk. Indican was present in the urine of all patients, although the authors recognize that pellagra can exist without indicanuria. Many of the patients showed also a positive Diazo reaction in the urine. Where the indican reaction was not heavy, several cases were noted in which the feces gave strong qualitative tests for indol and skatol.

The authors consider protein putrefaction in the intestine to be common in pellagra. There was, in general, a low urine excretion during the height of the disease. Albumin and casts were present in about half of the cases, although it is stated that marked pellagra can occur without any evidence of kidney change. There was a low excretion of total nitrogen and the ordinary urinary ingredients. The urea ratio, in general, was low, and in certain cases with fair total nitrogen the urea ratio was lower than would be expected, a finding which suggests liver insufficiency. There was a heightened ratio for ammonia nitrogen and undetermined nitrogen. The metabolic level during the active stage of the disease was low as further shown by the low excretion of uric acid and creatinin. The creatinin coefficient was much below normal. The utilization of protein was found to be subnormal even after several weeks of remedial diet. With at least a month of curative diet, the urinary ingredients rose to approximately normal amounts, the urea ratio rose to normal and the ammonia ratio fell to normal.

T. HOWARD.

SCHWARTZ, E. W.: **Some Observations upon the Behavior of a Fixed Oil (Peanut Oil) Injected Intraperitoneally.** *Journal of Pharmacology and Experimental Therapeutics*, March, 1921, xvii, No. 2, p. 115.

In experimenting the author used from 1 to 10 c. c. (16 minims to 2.17 fluidrams) of cold pressed peanut oil, which was injected into the peritoneal cavity of rats, mice, guinea pigs, rabbits and cats. No untoward physiological effect was produced in any of the animals by the oil. Two or three months after the injections a large amount of the oil was found free in the peritoneal cavity of the animals, and cystlike spheres containing oil were present. There was found gritty material in the cyst-like bodies which was believed to be similiar to the calcium and magnesium soap phenomena of the so-called "fat necrosis". The usefulness as a pharmacological method of the intraperitoneal injection of fixed oil as a solvent for fat soluble substances would seem to be limited, if the entrance of the dissolved material into the circulation is dependent upon the relatively rapid absorption of the solvent oil. This, however, does not imply that its use for administering volatile, serum-soluble and even suspended material might not be advantageous. Until more is known concerning this method, its employment should be accompanied by control experiments in which postmortem examinations are made.

C. A. SCHMID.

THOM, B. P.: **Strain in Spirochetes.** *The American Journal of Syphilis*, Jan., 1921, v, No. 1, p. 9.

The question of strain in spirochetes has for some time attracted the attention of laboratory workers and clinicians. It is a most momentous one both from the standpoint of treatment and prognosis. The author gives a brief survey of the problem and says that on the whole he is convinced there is no such thing as "strain" in the spirochete. Individual idiosyncrasy, if properly investigated, will account for all of the seeming vagaries of the disease. In other words the selective action of the *Spirochete pallidum* when introduced into the body is governed entirely by the manner in which the tissues of the host react to the invader.

REHFUSS, M. E., AND HAWK, P. B.: Gastric Analysis, the Interdigestive Phase or the Principles Governing the Phenomena of a Resting Stomach. *Journal of the American Medical Association*, Feb., 26, 1921, lxxvi, No. 9, p. 564.

A study of gastric phenomena throughout a single day reveals the fact that gastric digestion consists of a series of cycles. These are the digestive cycles, in response to the entrance of food, and the long or short pause or the interdigestive cycle.

Factors Making up the Interdigestive Phase. A study of the characteristics of the residuum in fasting stomach on 100 normal men showed the following:

(1) The average quantity was 52.14 c. c. whereas Fowler and Zentmire in 80 samples from women, found it to be 49.44 c. c., thus making 50 c. c. This indicates that the stomach is never empty.

(2) The total acidity of the normal residuum among men was 29.9 and among women 30.3 in terms of tenth normal sodium hydroxide.

(3) The pepsin concentration gave an average among men of 2.8 and among women of 3.3, again different from the digestive phase.

(4) Trypsin gave an average in men of 9.1 units and in women of 5.2 units.

(5) In 56 per cent of the authors' cases the residuum was bile-stained and in 68.1 per cent of the Fowler the same point was noted.

(6) The cryoscopic index was 0.470 which is less than blood (0.560) and indicates a tendency for osmosis from the blood into the stomach.

(7) The residuum was one of the lightest fluids in the body showing an average specific gravity of 1.0056.

During the interdigestive phase the motor function is totally altered. Instead of active peristalsis, we have the so-called peristole function, by means of which the walls of the stomach are approximated. Tonal and hunger contractions also appear. Furthermore in all probability the pylorus is relaxed.

The secretory function during this period is different. Two points stand out clearly; that (1) the titrable acidity is less than one-half of that encountered during the digestive phase, and (2) secretory velocity is slower.

A third and important phenomenon connected with the resting

stomach is the undoubted effect of the duodenal secretion and its apparently reciprocal relationship. During digestion, the pylorus clearly shows heightened tonus with but little regurgitation as a result except that which is essential to maintaining optimum acidity. On the other hand during the interdigestive phase, these phenomena seem to be reversed, and the trypsin content is inversely proportional to the free acidity.

In health, a satisfactory balance is maintained between the digestive and interdigestive periods. In disease this balance is ruptured and altered and the interdigestive phase may be completely obliterated.

ROKURO, U.: **The Relation between the Absorption of Antibodies and the Isolated Protein Bodies.** *The Journal of Immunology*, May 1921, vi, No. 3, p. 205.

The absorption of antibodies depends upon the quantity of proteins associated with them. Maximum degree was attained in 53 hours after subcutaneous injection, while it was reached after intraperitoneal injection in 30 hours. Kraus claimed it took 40 hours when the quantity of proteins contained in the material is the same: absorption of normal whole serum is faster than that of isolated proteins. It is useless to try to increase antibody values by concentration, without taking into account the quantity of proteins contained in the preparation, if one is to work for the maximum speed of absorption conclusively. The rate of absorption of antibody depends upon the quantity of proteins associated with it.

W. LINTZ.

SECTION ON PEDIATRICS

WINKLER, M.: **Diphtheria of the Skin** (Ueber die Diphtherie der Haut).
Schweizerische medizinische Wochenschrift, 1921, No. 16, p. 374.

Diphtheria of the skin was first observed in France by Chomel in 1759, and Trousseau described it. He said that the favorite location was in the blisters of the folds of fat children, on herpes blisters, on cuts, excoriation of the scrotum, at points where the skin is lacking, or where it has been spontaneously or artificially irritated. A devastating epidemic of diphtheria raged in France in the first half of the 19th century, and in Germany in the second half of the same century where the skin diphtheria was not as prevalent as in France. It seems that children was more frequently affected than adults, especially those of a scrofulous or a so-called exudative diathesis. In some cases, in spite of serum injections, death occurred from heart failure. Landé considers the fold of insertion of the ears as a favorite location because crusts very often develop at this site. Landé describes it by saying that the epidermis is destroyed and the cutis or corium apillae form the bottom of the ulcer. The edges are ragged, more or less infiltrated, often elevated. The surrounding tissue is infiltrated, grayish-brown or covered by a dirty looking membrane which cannot easily be removed without causing bleeding, especially at the edges. The ulcers do not usually spread; the membrane does not always form. In many cases the abscess is concealed under a thick crust. From the retro-auricular fold the ulceration may spread over the entire ear and the external auditory canal.

Diphtheria of the skin may, however, present itself in various forms. Sometimes it looks like a simple impetigo. Often the nature of the lesion is detected only on removal of the crust, when a diphtherial ulcer is found instead of the usual moist surface on a level

with the surrounding skin. Sometimes the eruption will appear like varicella. When they disappear a diphtheria membrane will be seen. Tieché's case followed perimphigus neonatorum about the navel. Rolleston saw a case of diphtheria of the nails after a burn. Diphtheria of the navel in infants may end in peritonitis. Others appear under the clinical picture of phlegmona or panaritium. If an incision is made into it badly smelling sanguinous fluid is evacuated instead of pus. In cases of noma diphtheria bacilli have been found. Diphtheria of the vulva has often been seen in girls. Kyrle described the case of a diphtheritic ulcer on the lip of a man, thirty-seven years old, which was not recognized until it had existed for 6 months. Serum was of no effect, and only by argentic nitricum could the ulcer be treated. A number of surgical cases have been reported in German clinics since the means of antiseptics and even the possibilities of the usual asepsis have been diminished by the conditions in the hospitals after and during the war. The author's case was that of a man, twenty-seven years old, who had grayish membranous ulcers on the scrotum with brown crusts. They extended to the thigh, and nasal and oral mucous membranes. The nature of the disease was discovered from two to three weeks after its sudden onset. Diphtheria serum cured the patient.

SUTHERLAND, G. A.: **Some Forms of Cardiac Irregularities.** *Archives of Pediatrics*, March, 1921, xxxviii, No. 3, p. 180.

"In a sense, it is normal for the cardiac action in early life to be irregular." The cause does not lie in the tissues of the heart muscles, but in the nervous control from the higher centers. In emotional excitement, the stimulation comes through the sympathetic system and the nervous accelerans in slowing. The cerebrospinal system and the vagus nerve are at play. These centers are active from the time of birth. In an adult the establishment of equilibrium is shown by the mere acceleration without disturbance of regularity on excitement. The "youthful type of irregularity", called so by Mackenzie, may be active during the first twenty years. Under normal conditions, inspiration diminishes vagus activity, and the heart beats more quickly, while expiration increases vagal action and the heart beats more slowly. The more slowly the heart is beating the more mark-

ed is inspiratory quickening and expiratory slowing of the heart rate. In the majority of cases, the diastolic variation which is present does not attract the notice of the clinical observer, and it may be necessary to take a radial tracing in order to demonstrate it. In other cases the irregularity is great enough to attract notice at once. A few quick beats are followed up by one or two of lessened frequency, and this alternation is kept up. The force of the pulse beat may be unequal, the quicker being the feebler. In such cases the respirations must be observed. When the patient holds his breath the irregularity disappears. After acute illness this sinus irregularity of respiratory origin is well marked. It is also marked in intracranial diseases, such as meningitis, cerebral abscess, encephalitis, where the heart rate is slow and the breathing is often irregular, being cyclic in character. All illnesses which tend to increase the rate of the heart are accompanied by a diminution or disappearance of sinus irregularity. If there is respiratory irregularity, it should be easily managed, but sometimes there are, in addition, irregularities due to extra-systoles. In such cases arterial and venous graphic records may become necessary.

Extra-systoles or premature contractions are met with in childhood in connection with organic disease of the heart and also when no disease can be determined in the heart or elsewhere. During the active stage of carditis in rheumatic heart disease extra-systoles may occur, but more often it occurs during the quiescent stage, when the heart has slowed down. Nervous children show extra-systoles, apart from heart disease. They often disappear in a puzzling manner. There may be no disease from this symptom, and the less noticed, the better. The tendency may run in families. It can be explained only by disturbance of the nerves which control the heart action. It is unwise to treat a child with no other symptom but an extra-systole as ill.

The detection of extra-systoles as the cause of cardiac irregularity is usually easy. On auscultation of the heart the irregular rhythm is followed by a longer interval than usual before the next beat (1 or 2 sounds), which is followed by a longer interval than usual before the next beat. In the radial tracing, every second beat is weak and premature and is followed after a longer interval by a full, strong normal beat. Each extra-systole is marked in the venous tracing as a large wave, due to simultaneous contraction of auricles and ventri-

cles. This was a tracing from a girl 14 years old, who presented no signs of organic heart disease. A week later she had no extra-systole. It is a type of *pulsus bigeminus*.

Another child, 6 years old, while recovering from an attack of acute anterior poliomyelitis was found to have a bigeminal form of pulse, a small beat following a large beat in regular sequence. The cardiac rate was 65 and she presented no evidence of organic disease of the heart. On auscultation the heart sounds appeared to be normal and equally strong in the successive beats. The only irregularity was in the pulse with its regular sequence of big beat and little beat. A year later the child was reported to be well.

Another condition in childhood may suggest the *pulsus bigeminus* and extra-systoles, namely when along with very rapid and regular breathing, the pulse rate is not very much increased. The nature of the irregularity is shown by getting the patient to stop breathing, when the pulse beat at once becomes of equal size and strength, and continues so as long as the breath is held. This is a condition of pseudo-*pulsus alternans*, associated with and due to very rapid respiration in the presence of a weakened circulation. It is probably dependent more on the disturbance in the circulation of the large intra-thoracic blood-vessels than the cardiac action.

When extra-systoles are frequent and regularly repeated, they may induce still further disturbances of the pulse beats. This compound form of irregularity is more difficult to detect clinically and to unravel from a graphic record. The author cites a case of a girl 13 years old who suffered from recurring attacks of rheumatic infection. The heart was greatly hypertrophied, partly as the result of previous valvulitis, but chiefly owing to pericardial adhesions. The cardiac rate was usually rapid but it had always been regular until one day the pulse showed marked irregularity. On feeling the pulse, a triple rhythm was noticed, 1 strong beat followed by 2 weaker ones. It might be called *pulsus trigeminus*. The heart sounds were equally loud at all the beats, every third beat seemed premature and to be followed by a longer pause than the other two beats in the cycle. The cardiac rate was 120 per minute. Often in such cases electro-cardiograms may be of use.

In the case of another girl of nervous temperament extra-systoles were common, taking a triple rhythm at times.

In childhood the use of digitalis is indicated in a rapid and regu-

lar cardiac rate, accompanied by symptoms of cardiac weakness (breathlessness, edema). Large doses must be given, and until physiological effects are produced. If by digitalis heart-block is induced (a rare occurrence in childhood), it is at the auriculoventricular node. A more common effect of digitalis is the induction of sino-auricular block. It is clinically recognized by the occurrence of sino-auricular block, and may be studied in its most characteristic form in childhood. There are one or more apparently missed beats, which increase and become predominant, alternating with periods where the faster rate predominates. The action is quite as regular during the slow as during the fast period. This is not due to a missed beat from extra-systole, but to a block at the sino-auricular node during the slow periods. As a rule it is a partial block of 2:1 variety, so that at the time of every second beat there is no impulse discharge from the sino-auricular node, and the whole heart stands still until the next beat is due. This condition is the result of the stimulation of the vagus nerve by digitalis and the powerful control which the vagus exerts over the sino-auricular node—the pace-maker of the heart.

The author's experience is that variation of the heart rate, due to a block at the sino-auricular node, is found only in the case of children who have been taking digitalis.

BALYEAT, R. M.: Diagnosis and Significance of Tracheobronchial Adenopathy. *Journal of the American Medical Association*, April, 9, 1921, lxxvi, No. 15, p. 988.

The author has made an analysis of 449 cases examined in the Oklahoma City Tuberculosis Dispensary. These were all children under 16 years of age. In the analysis, symptoms, physical findings and roentgen-ray findings were taken into consideration.

Of the 449 cases studied 36.5 per cent gave a history of contact with an open case of tuberculosis; 29 per cent had been exposed to suspected cases of tuberculosis, and 34.5 per cent gave no history of exposure. There was a history of whooping cough in 70 per cent and measles in 79 per cent. Pneumonia had occurred in 26 per cent. Pleurisy had occurred in 12 per cent, twenty-six per cent of the patients complained of cough, and 15 per cent gave a history of expec-

toration. Sixteen per cent complained of pain in the chest. Fever was found in 15 per cent. A history of loss of weight was obtained in 12 per cent. Hoarseness had been noticed by 10 per cent.

Sixty-eight per cent were found below standard in weight. Enlarged cervical glands were palpable in 50 per cent. Enlarged tonsils were found in 42 per cent. D'Espine's sign was positive in 37 per cent. Râles were elicited in 12 per cent.

About 50 per cent of the patients were roentgenographed. The roentgen ray diagnosis, independently of the clinical diagnosis, was: tuberculosis of the tracheobronchial glands alone, 9 per cent; tuberculosis of the tracheobronchial glands plus peribronchial tuberculosis, 28 per cent; tuberculosis of the tracheobronchial glands plus peribronchial tuberculosis plus parenchymal changes, 5 per cent.

A clinical diagnosis of a tuberculous infection of the tracheobronchial glands was made in 30 per cent; pulmonary tuberculosis, stage 1, 17 per cent; stage 2, 2 per cent; stage 3, in 2 cases.

Conclusions.—(1) A positive D'Espine sign is indicative of enlarged glands at the root of the lungs.

(2) Enlarged tracheobronchial glands may be due to any one of several causes, the chief of which is an infection by the tubercle bacillus.

(3) If tonsillitis, whooping cough, or measles causes enlarged tracheobronchial glands, they are usually not of sufficient size or density to give a positive D'Espine sign.

(4) Chronic bronchitis will produce enlarged tracheobronchial glands which can be differentiated from a tuberculous hilum by means of the roentgen ray.

(5) A positive D'Espine sign found in a poorly nourished child usually is evidence of a tuberculous infection of the hilum.

(6) The degree of infection can be determined by the roentgen ray.

(7) Weight below standard is very common in children with a chronic tuberculous infection.

(8) A child with massive chronic tuberculous infection is a candidate for active tuberculosis, and should be watched carefully for early signs and symptoms.

(9) In chronic tuberculous infections in children few signs can be elicited by physical examination.

(10) The degree of the infection in childhood is an important

factor in determining whether or not a child will develop active tuberculosis in adult life.

(11) Every child should have a thorough physical examination to determine if possible whether or not there is a tuberculous infection of the chest.

(12) Those with evidence of massive infections should be taught how to live and should be instructed in the signs and symptoms of early tuberculosis.

R. H. BENNETT.

WILSON, M. G.: Exercise Tolerance of Children with Heart Disease.

The Journal of the American Medical Association, June 11, 1921, lxxvi, No. 24, p. 1629.

Restriction of the activities of a child with only a systolic murmur is unjustified and harmful. The child with chronic organic heart disease is hard to manage. The profession has hitherto attributed cardiac failure to mechanical factors. The difficulty lies, however, in estimating the functional capacity of the heart, but exercise is valuable, even in these cases, if it is standardized. Exercise tests of normal and cardiac disease children were made and the exercise tolerance obtained. The group of average normal children was from six to fifteen years of age, 33 girls and 12 boys, supplementing the previous study on 20 normal children. The total was 65 children, 37 girls and 26 boys. They were observed from one to six weeks, at intervals of from two to five days. A small group was observed monthly over a period of one year. The group consisted of 116 children with heart disease, from six to fifteen years of age, 84 girls and 32 boys. They were observed over periods of from three months to one year, and averaged from three to twelve tests. Observations were made at intervals of from two to five days, periodically. The group included children with all manifestations of organic heart lesions, congenital and acquired, possible and potential heart disease.

The test exercise consisted of swinging two iron dumb-bells (2, 3, 4, 5, 7, and 10 pounds each) from the floor to the full stretch of the arms overhead and back again between the legs at a constant rate of two seconds for each swing. This movement was repeated from ten to forty times. Two or three of these exercises were repeat-

ed at each visit, till marked breathlessness, flushed face, and fatigue occurred. Forty-seven normal and 116 cardiac children were put to this test.

The stair-climbing exercise consisted of from twenty-five to sixty steps, with a total rise of 15 and 30 feet, taken in from twenty to forty seconds. Seventy-four children, 27 normal and 47 cardiac, were put to this test.

Jumping the rope 100 times in 100 seconds was tried in 13 children, 5 normal and 9 cardiac.

There was a thirty minute drill daily for six weeks by twenty-five children from the cardiac group.

STANDARDIZED TEST EXERCISES

Test Exercises	Age in Years for Standard Weight and Height	Normal Range								
		Simple or Mild			Average			Severe or Strenuous		
		No. of D. B.	Weight, Lbs.	Swings, Times	No. of D. B.	Weight, Lbs.	Swings, Times	No. of D. B.	Weight, Lbs.	Swings, Times
Dumb-Bell Test:										
Swinging two iron dumb-bells from the floor to full stretch of arms overhead and back again between the legs at a constant rate of two seconds for each swing.	6-8	2 2	3 1	10 10	2 2	3 1	20 20	2 2	3 1	30 30
	8-12	2 2	4 5	10 10	2 2	4 5	20 20	2 2	4 5	30 30
	12-15	2 2 2	5 7 10	10 10 10	2 2 2	5 7 10	20 20 20	2 2 2	5 7 10	30 30 30

Staircase Test:	Age, Yrs.	No. of Flights	Rise, Ft.	Time, Sec.	No. of Flights	Rise, Ft.	Time, Sec.	No. of Flights	Rise, Ft.	Time, Sec.
Stairs taken at a steady climb without rest	6-11	2	15	40	1	30	40	1	30	40

Reaction of Average Normal Children Following Test Exercises

	To the Mild Test Exercise	To the Av. Test Exercise	To the Severe Test Exercise
Color of face (flushed).....	.....	+	++
Degree of dyspnea.....	.....	+	++
Degree of fatigue.....	.....	.....	+
Rise of systolic blood-pressure	10-15 mm.	20-30 mm.	30-40 mm.
Type of systolic curve.....	Normal	Normal	Normal

These are the standards arrived at. These exercises were followed by normal systolic blood-pressure curves, without symptoms of dyspnea and fatigue. The degree of distress and type of systolic blood-pressure curve following standardized test exercise was used as a gauge in estimating the exercise tolerance of children with heart disease. Of the 71 children having definite organic heart disease, without symptoms of insufficiency, 69 per cent had a normal tolerance, for standardized test exercises, 29 per cent had a fair tolerance, and in 2 per cent it was poor.

The observation, resulting from this investigation would seem to indicate that the fear of exercise is unwarranted, and that a wider latitude may be permitted with safety in children with cardiac disease.

SILVESTRI, T.: **Diabetes Insipidus and Puberty** (Diabete Insipido E Puberta). *La Riforma Medica*, 1921, A. xxxviii, No. 18, p. 412.

The patient had a living brother, and four living sisters. His father had arteriosclerosis and was living; the mother had died of cerebral hemorrhage. Some of his relatives died of tuberculosis, and one brother showed suspicious glandular involvement. There was neuropathic heredity, but no syphilis, however there was some alcoholism in direct and indirect ascendancy. The patient had been born at term, and breast-fed. He was well up to three years of age when he developed an obstinate serious intestinal disturbance, from which he rallied slowly.

Polyuria developed after this attack, and after futile treatment diabetes insipidus was diagnosed. When he was five years old he weighed 10,300 grams (22.77 pounds); he drank from 14 to 17 liters (24.589 to 35.8295 pints) of water and passed but from 14½ to 17½ liters (31.5457 to 36.8862 pints). Nothing but cold baths could alleviate the syndrome. For years he suffered from violent headaches, vomiting, sensitiveness, sensorial and vasomotor disturbances. The headaches would resist treatment and cease suddenly. Sometimes most severe colic would set in. This condition lasted almost one year. When the author examined him at the age of fourteen the head was in no way out of proportion nor abnormal; psychic functions were normal. The thoracic circumference measured from

66 cm. to 69.5 cm. (25.984 to 27.362 inches). The length of the sternum was 12 cm. (4.7244 inches). The sexual organs were those of a child of from 9 to 9½ years old. The upper arm was 22 cm. (8.66 inches) and the forearm 21 cm. (8.267 inches) long. The average output of urine at that time was from 13.450 to 12.675 liters (28.426 to 26.788 pints) a day.

Opothorapy, pancreatic, hypophyseal, thyroid nor dietetic treatment brought on amelioration. When he grew up developmental arrest became more marked. It was due to a hereditary nervous constitution, a serious gastro-intestinal infection. The headaches lasted four years. An intracranial lesion, causing diabetes and infantilism was suggested.

Adrenalin glycosuria was of normal daily average; carbohydrate tolerance was subnormal. Infantilism, in this case was accompanied neither by general nor localized adipositas. The only improvement the author has been able to obtain in any kind of diabetes by hypophyseal infections was a reduction of thirst. The colics led to suspect pancreatic infantilism.

Idiopathic diabetes mellitus as well as insipidus and constitutional obesity do not seem to be the consequence of a lesion in a single gland, but a general malfunctioning of several parts of the glandular system. It is a pluriglandular diseased condition varying in different individuals and at various times in the same individual. The sympathetic endocrine system, in this case, was injured during the third year of life by an intestinal toxemia. Puberty is the time when the equilibrium might be directly or indirectly reestablished; and the diabetic condition and the skeletal changes might be balanced.

BRUNSGAARD, E.: **Congenital Syphilis in the Second Generation** (Om syphilis congenita i 2den generation). *Norsk Magazin for Lægevidensshaben*, 1921, A. 82, No. 5, p. 353.

A boy, nine years of age, has deep sears radiating from both corners of his mouth onto the chin and cheeks. The Wassermann test is ++. His mother twenty-eight years of age, has the following syphilitic symptoms: periostitis on both tibiae, parenchymatous keratitis of the right eye, and Wassermann ++. At the age of six weeks she was treated for congenital syphilis. Before and during her preg-

nancy she had parenchymatous keratitis and was treated by the hospital ophthalmologist. Her mother, fifty-eight years old, is being treated for syphilitic periostitis of the left tibia with large ulcerated gummata. At the age of thirty-one she had been infected with syphilis by her husband. She has had two miscarriages: three children died after a few months of congenital syphilis, one at the age of eight from "congenital weakness", three children, two girls and one boy are living. The oldest of these girls is the boy's mother. The other is suffering from syphilitic otitis media, interna of both ears, and she has traces of parenchymatous keratitis. Wassermann reaction is positive. The boy, at the age of one month, was treated for congenital syphilis. Reinfection was eliminated in this case.

GERSTLEY, J. R.: **The New Era in Pediatrics.** *Journal American Medical Association*, June 11, 1921, lxxvi, No. 24, p. 1633.

Bacteria and the patient's resistance are not alone to be considered in disease, but environment as well. A well baby clothed in shirt and diaper will remain well and happy during summer weather; overclothe it and it will react with diarrhea and collapse from retained heat. The diagnosis is made by considering the environment, not by physical nor bacteriologic examination. A change of nurses may upset every child in a ward. In pediatrics the influence of environment is well known in anorexia nervosa. Too much attention and affection may cause severe trouble in loss of appetite, cough, etc. The author believes in studying pathology and physiology, but to learn to treat and alleviate the ills of disease and environment. Oil poured on water may blot out malaria in a district, proper shoes put on patients will blot out hookworm, boiled or chlorinated water, screens and a few injections of vaccine eradicate typhoid fever from the army, typhoid spleen and ulcers.

In pediatrics, prevention is leading, and infant welfare conducted on this basis has reduced infant mortality incredibly. Some physicians in Chicago are trying to see their little patients as long as they are well once a month. Pathology in many instances becomes insignificant before etiology and it is often brushed aside by the advances of practical physiology. The question must be not "What are the pathologic findings of this intestine", but, "What is the toler-

ance in this intestine to food, the capacity of this heart, or of this kidney for work?" In future the community will demand of the physician that he keep the child at play and at school and the adult at work. In the attempt to improve the function of an organ, we try to influence the entire body, and by it the organ. "A diet which might be absolutely contraindicated from the standpoint of pathology of the gastro-intestinal tract might, from the standpoint of the patient as a whole, be marvelously successful". Finkelstein preached not to treat the stools, but to treat the baby. Mackenzie taught to treat the patient as well as the cardiac disease. The physiological standpoint tries to find the tolerance of work for a diseased organ. The author has seen nephritis in a child improve on a full salt-free diet, while a restricted meal was without value. In scarlet fever he has seen children on full diets come through the disease with less nephritis and in better psysical condition than those whose food was restricted. The diseased organ must be considered in its tolerance and no food given which will injure the organ.

SECTION ON
ROENTGENOLOGY AND ELECTRO-
THERAPEUTICS

MURPHY, J. B., HUSSEY, R. G., NAKAHARA, W., AND STURM, E.: **Studies of X-ray Effects. VI. Effect of the Cellular Reaction Induced By X-rays on Cancer Grafts.** *The Journal of Experimental Medicine*, March 1, 1921, xxxiii, No. 2, p. 299.

Small areas of the skin in the groin of mice were subjected to an erythema dose of x-rays and a week later a cancer graft was inoculated intracutaneously into the area and at the same time a like graft was inoculated in the same manner in the opposite groin protected from x-rays. The graft in the x-rayed area showed a low percentage of takes, while that in the normal skin gave the usual high percentage. The graft when introduced into the subcutaneous tissues grew equally well on both sides, as well in the x-rayed as the protected area.

Histologic examination showed the skin layers after x-ray treatment to be markedly infiltrated with round cells of the lymphoid type. This reaction did not extend below the skin layers. Histologic examination suggests that the lymphoid reaction induced by the x-rays controls the graft made into the skin, while its absence in the deeper tissues accounts for the growth of the grafts more deeply planted.

H. M. FEINBLATT.

HAZEN, H. H.: **Roentgen-ray Treatment of Cutaneous Cancer.** *Journal of the American Medical Association*, April 30, 1921, lxxvi, No. 18, p. 1222.

Technic.—The vast majority of cases were treated with a Coolidge tube and an interruptless transformer. The dosage employed was:

spark-gap, seven and one half inches: focal skin distance, 8 inches: time, two and one-fourth minutes: milliamperage, 4. In the deep cases 1 mm. of aluminum was generally used as a filter. The interval between treatment depends upon the amount of reaction. The average time is three weeks.

Basal-cell Cancer.—One hundred and four persons were affected and 147 basal-cell cancers were treated. Of these patients 61 were men and 43 were women.

RESULT OF TREATMENT

Well 3 years	16.
Well 2 years	17.
Well 1 year	39.

	72.
Relapses cured	4
Relapses healed	2
Healed	41

	119.
Not cured	16.

Those cases listed as healed have been followed less than one year. Basal-cell cancers situated on the eyelids and the ears where cartilage is involved, have notably resisted treatment.

Patients who have many previous roentgen ray or radium treatments did not do nearly so well as did the untreated patients.

Prickle-cell Cancer.—Fifteen patients with prickle-cell cancer were treated. Eleven of those patients were men and four were women. Four cases were permanently cured; three healed, although it is too early to say that these patients are well; and eight were not in the slightest degree influenced.

R. H. BENNETT.

WEBSTER, T. H. D.: *The Action of Radium and X-rays on Malignant Cells.* *Archives of Radiology and Electrotherapy*, April, 1921. No. 249, p. 346.

It may be that the time interval is a factor of importance in results. Its importance is apparent in some conditions of cellular

radio-sensibility. The rapidity of nuclear divisions and of metabolism increase the sensitiveness of the cell to radiation the more rapid they are. The younger the cell is the more it is influenced by radiation. In certain types of rat sarcoma the complete cell cycle was completed in four days, the actual dividing in one hour. If these young cells are attacked by radium the result may be rapid.

The radio-sensitiveness of the tissues furthermore depends upon the blood and lymph content. If it is high, inflammation or diathermy increase, while compression or adrenalin-anemia diminish. Normal tissue, fortunately, is not as sensitive as is that, for instance, of malignant tissues, especially of lymphatic origin. Wetterer says that in general the kind of cell damage is similar for all cells, differing only in degree, and varies with the quantity of rays absorbed and with the cell type sensibility. Bone, of course, is less sensitive by one hundred times than lymphocytes or testicular seminiferous cells. Bergonie and Tribondeau are of the opinion that the sensitiveness depends upon the reproductive capacity of the cell. They compare for instance the actively proliferating mamma with its comparative insensitiveness when quiescent, and in pathological tissues with the sensitiveness of a rapidly developing sarcoma, especially a lymphosarcoma, a rodent ulcer, a skin metastasis, from a mammary carcinoma, with the slightly sensitive osteosarcoma, chondrosarcoma, scirrhus, etc. In the radiated tissue itself, there is a "patchy effect" produced, depending upon the age of the cells, the older being less modified, the proliferating being more extensively destroyed. Cells with a long reproductive cycle are highly sensitive to radiation such as mother sperm cells, epithelium and hair papilla cells. Bergonie and Tribondeau conclude that cells vary in their reactions as they are definitely fixed or not in their morphology and function. Schaudini found that chromatin in the many nucleated protozoa render them more sensitive than many mononuclears of the same species.

Experiment shows that radiation may have no result on the vegetative life of a cell, but still may inhibit its reproductive faculty, and Wassermann says that the richer a tissue is in genoceptors, that is, the more capable it is of regeneration and proliferation, the higher is its sensitiveness to radioactive substances. Larger doses destroy not only nuclears, but the cell as well. Changes in the staining reactions and disappearance of Altmann's granules are found according to Scholtz and Gassmann in one to seven days after radiation.

In human carcinoma radiation, Clunet and Raulot-Lapointe have found that squamous-celled forms have a latency of from six to fifteen days, which Heineke thinks is the interval between the destruction of the power of nuclear division and the death of the cell itself. Enlargement of all parts of the cell will occur and an increase in the nuclear chromophil will show atypical mitoses and pseudoparasitic forms in the cell body. In all cells keratinization takes place, sometimes beginning atypically in the nucleolus. "Sometimes the nucleus is broken up and disappears in the protoplasm, which becomes granular and acidophil. The granules fuse and a mass of keratin results. It appears that disintegration and phagocytosis of the keratinized masses is the work of the polynuclear neutrophils and the fibroblasts of the stroma, which actively proliferate. Long after the malignant cells have disappeared, macrophages and plasma cells persist around the vessels. In a supple scar, more often with the characters of healthy skin, no malignant elements may be left, but in the depths, of it, altered, but not destroyed cells, with chromophil nuclei, not pyknotic, and with their protoplasm reduced and markedly basophil, may persist. If the treatment is not prolonged these cells may give rise to recurrence.

The transformation of a very vascular myeloid sarcoma into a fibrous scar, by change of part of the protoplasm of giant and other cells to connective tissue fibers, effected by radium has been reported by Faux-Beaulien and Dominici. The rest of the cytoplasm and nuclei were changed into connective tissue cells, the nuclei elongating and becoming atrophic, and the large blood spaces disappearing. Scholtz has shown that the first and chief effect is on the epithelial elements, and that the inflammatory reaction and connective tissue proliferation are both secondary effects of epithelial degeneration. Albert-Weil predicts that possibly some day a tumor may be removed, irradiated and then re-inoculated, and by this method immunity against recurrence may be conferred.

DUNCAN, R.: **Recent Developments In Radium Therapy.** *California State Journal of Medicine*, March, 1921, xix, No. 3, p. 102.

By means of an apparatus it is possible to collect from a suffi-

cient quantity of radium in solution, the emanation for therapeutic purposes. When a small amount of sodium chlorid or a piece of lead foil is encased in a glass tube connected with this apparatus, and the emanation is brought and retained in contact with it for three hours, the active deposits radium B. and C. which emit beta and gamma rays, and when deposited thereon, render the substance temporarily radio-active. The salt may be dissolved in a proper quantity of water to produce a physiological salt solution, its radio-activity measured and administered intravenously. Lead foil, when rendered radio-active in this manner, can be cut into a desired shape for the treatment of various superficial lesions. One gram of radium is the minimum amount. From each grain of radium in solution, there may be collected each twenty-four hours 166 millicuries, minus a small loss. The emanation collected undergoes rapid disintegration, one-half being lost every four days. The amount or number of millicuries of emanation available at the end of thirty days is equivalent to the number of milligrams of radium element in solution. This emanation is collected in small glass capillary tubes, and this tube encased in various metal capsules, applicators or screens. Thereby the character of the beta and gamma rays may be modified as desired. "Generally speaking, imperfectly formed tissues and cells are less resistant than normal tissues". Carcinomatous cells have been found to be destroyed by one-fourth the dose necessary to destroy a normal epithelial cell.

The beta rays of radium with proper dosage have a well-defined and circumscribed effect for an area of approximately one and one-half centimeters whereas the gamma rays in sufficient quantity, by proper screening and technique, may be effective for a distance of several inches. The more abundant beta rays are employed chiefly in superficial lesions of the skin or mucous membrane where the involvement does not extend beyond one and one-half centimeters in depth, or where the tubes are to be buried within the tumor substance. Where deeper tissues are to be reached the beta rays may be screened off by one millimeter of platinum, leaving the more penetrating gamma rays available. The tubes buried at a distance of two and one-half centimeter produce a homogeneous raying of all intervening tissue. They lose their activity in about twenty days. They may be screened with one-half millimeters of platinum. They contain several hundred millimeters and are left in situ a few hours.

They may be located in the bladder, prostate, larynx, pharynx, antrum, nasal fossa, oesophagus, the cardiac end of the stomach, employing the fluoroscope, etc. Pain and stricture will be relieved.

Radium emanation is an ideal treatment in superficial lesions as it is possible to make applicators of nearly any desired shape, conforming to the nose, eyelids, lips, etc. The most wide-spread use has been that in benign and malignant uterine hemorrhage. Clinical cures have been effected in 24 per cent of inoperable cases, 30 per cent of the recurrent cases and 57 per cent of operable cases. In a limited number of selected cases post-operative prophylactic use of radium is indicated. Hodgkin's disease and leukemia, particularly of the lymphatic and myelogenous type, are favorably influenced, as are some cases of hypertension and arthritis.

NAKAHARA, W., AND MURPHY, J. B.: **Studies of X-ray Effects. VII. Effects of Small Doses of X-rays of Low Penetration on the Resistance of Mice to Transplanted Cancer.** *Journal of Experimental Medicine*, April, 1921, xxxiii, No. 4, p. 429.

Experiments were made upon young adult white mice who were given 10 minute exposures at 8 inch distance and with seven-eighth spark-gap, milliamperage 25.

The results showed an increased resistance to transplant of carcinoma in the animals treated with the x-ray. The degree of stimulation induced by this agent is however, less than that induced by intense dry heat or following the injection of homologous living tissue.

H. M. FEINBLATT.

CZEPA, A.: **Death From Suffocation, After Irradiation of a Mediastinal Tumor** (Erstickungstod nach Roentgenbestrahlung eines Mediastinaltumors [lymphogranuloms]). *Strahlentherapie*, February 15, xii, H. 1, p. 21.

A patient suffering from a lymphogranuloma of the mediastinum received x-ray treatment and died a few hours later. Death occurred from lessening of the tracheal lumen by a nodule in the trachea as an early roentgenologic reaction. The bulging nodules histologically were not hypertrophied but edematous.

The author advocates a preliminary test irradiation in all cases of mediastinal tumor, struma, thymus and hyperplasia, where there is danger from swelling, which might compress the trachea and blood-vessels. If possible, it is best to give repeated smaller doses.

SCHAECKER: **Ultraviolet Rays and a New Basis in the Treatment of Diseases of the Heart and Blood-vessels** (Ultra-violettbestrahlungen als neue Grundlage der Therapie von Herz und Gefaesskrankheiten). *Strahlentherapie*, April 20, 1921, xii, H. 2, p. 456.

The author thinks that there is a deep acting effect of the ultraviolet rays, that is, those rays which are shorter than 0.0004 mm. He believes that the shortest, that is those of less than 0.0002 mm. and which are the most irritating, are closely related to the roentgen rays. They are the biological, while the pigmenting rays are more than 0.0002 mm. He does not favor filtration of the quartz lamp rays, and would restrict their application to skin diseases only.

If the outermost ultraviolet rays are properly dosed, they may be of very good effect. Struma will disappear, prostatic patients will find great relief, general irradiation will cause gouty joints to decrease. The therapeutic optimum of the rays penetrating the body, and which are biologically potent are at a distance of from 1.25 to 1.50 mm. (49.223 to 59.055 inches) from the light source. Beyond that the dangerous rays causing pigmentation come into action, and they bar the action of the short beneficial rays. The author has never seen appreciable pigmentation, even in long irradiation at 6000 and 1200 candle force. The skin would become turgescient, rosy and flushed.

Generally the treatment consisted of general irradiation. One lamp was used in front, and one on the back, a decrease of blood-pressure was effected, and the results in cases of cardiac and vascular disease were marvelous. Nauheim baths were given simultaneously. The pulse became softer, irregularity and intermittance ceased, sleep was improved, diuresis became more profuse, thirst diminished. Ultraviolet rays act as bactericides, and dissolve uric acid.

Many cases of ischias, lumbago and arthritis are greatly benefitted by this combination of baths and ultraviolet lights; so are abdominal gynecological conditions and dysmenorrhea. Wounds, goiter,

hair diseases, parenchymatous and colloid goiters can be made to disappear. It may be that morbus Basedowii could be treated this way. Cases of acute gout, and erysipelas were healed. Lung trouble, bronchial asthma, chlorosis and rickets were improved.

STAUNIG, K.: Roentgenologic Demonstration of the Base of the Skull.

The Posterior Cranial Fossa (Zur roentgenologischen Darstellung der Schaedelbasis). *Fortschritte aus dem Gebiete der Roentgenstrahlen*, xxviii, H. 1, p. 42.

The base of the skull has six fossæ which have different density and thickness of bone. They are arranged symmetrically and in a profile picture each of the fossæ are liable to overlap. The axial presentation offers difficulties in the situation of the base of the brain lying between the vault of the cranium above and the facial part of the skull and the soft parts of the neck below. One-third of the base, that is the posterior part, which is bounded by the pyramid crest in front of the sulcus transversus, the eminentia cruciata, the crista occipitalis interna, and the lateral edge of the foramen occipitalis, can be well demonstrated.

The patient is placed on his back, with a sand-bag under the head, which is turned at an angle of 45 degrees toward the side which is to be examined. The part of the occiput lying on the center of the plate is midway between the exterior occipital protuberance and the exterior opening of the meatus auditorius of the side, which is being examined.

Such an x-ray picture will show the posterior cranial fossæ with its sutures and the sinus sigmoidens.

BIRCH-HIRSCHFELD: Injury of Eyes by Roentgen Rays (Zur Schädigung des Auges durch Roentgenstrahlen). *Strahlentherapie*, April 20, 1921, xii, H. 2, p. 565.

In older publications it was proven that the retina, on prolonged irradiation, showed an adaption, such as fading of the pupil, but no morphological change in the nerve cells, and that the rays did not injure the retina. At the same time benign inflammatory conditions were admitted to occur in the front part of the eye.

The author made animal experiments and found that changes occurred in the epithelial organs (cornea and lens) in the blood-vessel walls, that inflammatory infiltration and degeneration of nerve cells of the retina and optical nerve fibers took place. These symptoms were found after a period of latency of several weeks. In the front part of the eye blepharitis with loss of eye-lashes, conjunctivitis, keratitis, iritis, changes in the epithelium of the cornea and conjunctive and vascular changes were observed. The lens was not changed. The same changes were seen from radium bromid.

Clinically, the author found vascular changes in the conjunctiva after the use of roentgen ray. The blood-vessels showed constriction and sloughing. This was a result of the so-called vacuolizing degeneration of the vessel intima, which has been described in the skin, and now was seen in the iris, retina and conjunctiva.

Recently roentgen rays have been often used in glioma of the retina and sarcoma of the eye. The author had occasion to treat patients whose upper eye-lid had been irradiated for a malignant tumor. The eye-ball was not protected, and every two weeks after the procedure pain and inflammation recurred, and the patient lost sight in this eye. A glaucoma developed, and the eye had to be removed. The other eye showed no traces of glaucoma.

KIRKLIN, B. R.: A Plea for a Routine X-ray Examination of the Gall-bladder Region in Every Chronic Abdomen. *Journal of Radiology*, May, 1921, ii, No. 4, p. 1.

The competent roentgenologist ought, in every case of chronic abdomen, eliminate or sustain the diagnosis of gall-bladder pathology. Some authors have contended that not more than 10 per cent of gall-stones can be demonstrated by the roentgen ray; others claim to find from 85 to 95 per cent of pathologic gall-bladders. George, Case and Cole found that gall-stones containing calcium could be detected much more frequently than they had suspected. A pure cholesterin stone will hardly show on the film, but the cholesterin stone is rare or not in existence. Dense calcareous stones are easily demonstrated but this type is in the minority.

The author thinks that a routine examination of the gall-bladder should be carried on with good confidence in its results for all path-

ologic conditions. A thickened or enlarged bladder with or without stones or bile of high specific gravity, and cholecystitis with adhesions are demonstrable after a barium meal. Often the pressure of an enlarged gall-bladder against the stomach, duodenum or colon shows up.

The patient is directed to take 2 drams of compound licorice powders at bed-time each night for from three to four nights previous to the examination and eat no supper the day previous and no breakfast on the morning of the examination. From three to six exposures are made. A barium meal is given in the fluoroscopic room for any indirect signs. From three to six more exposures are then made. The patient must be kept absolutely still.

The shadows on the x -ray plate or film which are significant are the fixation of the liver or stomach, the pylorus being drawn upward and to the right. There is characteristic deformity of the first portions of the duodenum and possibly the second portion, due to adhesions pulling the duodenum to the right and outlining the gall-bladder. An outlining of the gall-bladder, due to pressure against the duodenum or antrum of the stomach is also seen. A definite area of pain to pressure accurately localized to the outer side of the shadow of the duodenum, usually accompanied by a lag in the emptying of the duodenum is also present. There is pressure of Riedel's lobe of the liver when demonstrable, following gas distention of the stomach and colon. The emptying of the barium meal out of the duodenum is usually delayed or too rapid.

During the last 18 months the author has examined 421 gall-bladders by x -ray. Gall-bladder pathology with or without stones was reported in 168 cases, that is, in 40 per cent. In 92 per cent the operative findings confirmed the diagnosis.

ROWE, E. W.: **A Comparison of Important Factors in the Diagnosis of Gastric and Duodenal Ulcers.** *Journal of Radiology*, May, 1921, ii, No. 4.

This study is based on 204 cases. A routine x -ray examination was carried on in gastroenterologic cases. The classical expectancy is that 20 per cent will be diagnosed clinically and the remainder on the operating table. Some surgeons have entirely discarded the tube,

relying on the roentgen method only. Some make tests of the secretory functions. The case-history is very essential, the tests are secondary, the determination of motor function is more important. This is shown with great accuracy by the *x*-ray, which also anatomically locates the lesion. Without roentgen-ray examination "the course of medical and surgical treatment is blindly made and empirically followed". Every patient with an ulcer should be studied at least once a year, whatever the treatment may have been, and no exploratory operation should be made till the *x*-ray has been consulted. An ulcer larger than a quarter in the stomach is potentially malignant, for 60 per cent of these have, by Mayo, been proven to be cancer. A residue at the end of six hours usually indicates the pathological significance. A routine roentgen examination should be made when any serious disease of the gastro-intestinal canal is suspected in all patients in the cancer age who have any suspicion of carcinoma, in all long-standing gastric disturbances which have not yielded to treatment, and in neurotics.

KOFF, J.: **Radium Therapy in Lupus Vulgaris** (Zur Radiumtherapie des Lupus Vulgaris). *Strahlentherapie*, April 20, 1921, xii, H. 2.

The cases of lupus where radium therapy is indicated are the flat ones at or just below the skin level, the depth of which amounts to but a few millimeters or less than a millimeter. They consist of nodules, surrounded by thick, mostly postoperative cicatricial tissue. It would not be rational to eliminate the hard rays, because time can be saved. The author put his radium in new silver capsules 0.2 mm. (.0078 inches) thick, and the walls of which absorb 67 per cent of the rays. Missing filters are added from 0.2 to 0.3 mm. (.0078 to .0118 inches) thick, according to the site of the lesion. For the nasal mucous membranes Dominici tubes, made of platinum 0.3 mm. (.0118 inches) are employed. This will eliminate all primary rays.

The soft secondary rays were filtered by surrounding the apparatus with paper and parchment.

They were then fastened by adhesive plaster and a few layers of bandage. The healthy skin was covered with lead foil, rubber, and paper. The bandages have the purpose to cause a degree of anemia. Some cases were healed by minute doses of almost unfiltered radium

rays; others improved considerably and remained so, without being cured. Still others were at first benefitted by radium, but are no longer influenced. They will spread constantly and are hypersensitive to small doses, and unaffected by large ones. Superficial ulceration is always a warning. It is not possible to give a standard dose for lupus, but it is safe to say that if from five to six single doses at from 80 to 100 per cent of the erythema doses has been used, and no cure effected, they are not amenable to radium treatment. Small more deeply located single nodules, especially well circumscribed plaques and recurrent neoplasms in thick cicatricial tissue are most amenable to this treatment. Furthermore, especially indicated are tuberculous venucosa cutis and lesions of the conjunctiva. In the first, from two to four roentgen ray applications of from 5 to 6 H. with a 2 mm. (.07874 inches) aluminium filter each are used. These are followed by two or three radium treatments of from 90 to 100 per cent each of the erythema doses. The cosmetic result is very satisfactory, the skin remaining soft and smooth.

SECTION ON NEUROLOGY AND PSYCHIATRY

BARKER, L. F.: **The Classical Endocrine Syndromes.** *New York Medical Journal*, March 2, 1921, cxlii, No. 9, p. 353.

The Thyroid Syndromes.—(1) These consist of over-activity of the thyroid gland (hyperthyroidism), known as Grave's disease; and (2) underfunction of the thyroid gland (hypothyroidism), known as myxedema.

Graves's disease is known also as Basedow's disease, Parry's disease, and Flajani's disease. The cardinal symptoms are: (1) persistent tachycardia; (2) struma; (3) marked fine tremor; and (4) exophthalmus. The syndrome is most pronounced in typical exophthalmic goiter, in which there is diffuse hyperplasia of the whole thyroid gland, giving rise to a horseshoe-shaped, pulsating struma, associated with a high degree of tachycardia (pulse-rate from 100 to 150 or more a minute), marked nervous symptoms, including fine tremor, and obvious protrusion of the eyeballs. A similar syndrome is met with in so-called toxic goiter, in thyroid adenomata, and in acute thyroiditis. In all these forms of hyperthyroidism it is believed that a poison, thyroxin, and possibly others, is produced which exerts a toxic effect upon the cardiovascular system, upon the nervous system (especially its autonomic parts), and upon the tissues concerned with metabolism. Disturbances of autonomic innervation appear to be responsible for the symptoms referable to the eyes, to the heart and blood-vessels, to the skin and to the digestive, respiratory and urogenital systems. Other important eye signs are: (1) widening of the lid slits, Dalrymple's sign; (2) dissociation of the movements of the eyeballs and of those of the upper lid, Von Graefe's sign; and (3)

inability to maintain convergence of the eyes, Moebius's sign. Cardiovascular symptoms are tachycardia, subjective feelings of palpitation and temporary erythemas. Prolonged thyrotoxication leads to degenerative change in the heart muscle, to dilatation of the heart and sometimes to auricular fibrillation. Cutaneous symptoms are: profuse sweating, especially of the hands and feet; thin, delicate, soft texture of the skin. Digestive symptoms are: unmotivated attacks of watery painless diarrhea, in which from four to ten or thirty stools a day are met with, and persistent nausea or vomiting without apparent cause. Respiratory symptoms are: subjective feelings of dyspnea, accelerated respiration and shallow breathing. In the Goetsch test, which is of great value for diagnostic purposes for the detection of oversensitiveness of the sympathetic nervous system, a small quantity of epinephrin solution is injected subcutaneously and its effect upon the pulse-rate, the tremor and the blood-pressure and the subjective nervous symptoms is noted. Acceleration of the metabolic processes is an important phenomenon of this test and is best obtained by determination of the basal metabolic rate. In outspoken cases the total combustion in the fasting, resting state may be from 50 to 70 per cent greater than normal. Mentally the patients exhibit a peculiar restlessness, and over-alertness and quickness of movement, marked apprehensiveness, anxiety and insomnia. Phobias and obsessions are common among these patients. Occasionally, outspoken psychoses occur. Some exhibit profound muscular weakness. Many patients show an outspoken lymphocytosis with corresponding diminution of the polymorphonuclear neutrophils. There are many typical cases in the recognition of which, taken together with the cardinal symptoms, the Goetsch test and the determination of the basal metabolic rate will be helpful. As to treatment, some urge partial thyroidectomy in every case; others maintain medical therapy gives just as good or better results (mental and physical rest, general up-building, removal of foci of infection, ice-bag over the thyroid and over the heart, retardation of metabolism by administration of arsenic or quinin, lessening of the sensitiveness of the sympathetic system by ergot, radiotherapy, psychotherapy). When medical measures are unsatisfactory too much time should not be lost in resorting to surgery. Great relief can often be speedily obtained by ligature of thyroid arteries or by resection of the thyroid gland in diffuse hyperplastic goiter, or by removal of adenomata.

Myxedema.—This consists of loss of function or insufficient function of the thyroid gland (hypothyroidism) accompanied by peculiar symptoms such as: (1) leatherlike thickening of the skin; (2) falling out of the hair; (3) mental dulness and torpor; (4) sensitiveness to cold; (5) obesity; (6) constipation; (7) marked slowing of the metabolic processes; and (8) mucous-like edema of the skin. The skin is thick, dry and rough, and it is often thrown up into folds. Usually the skin is of a pale color and has a waxy look. The face may look edematous but it does not pit on pressure. Characteristic sacs appear below the eyes, but the small wrinkles in the skin are not obliterated as they are in true edema. The patients usually have a double chin, and have pads of fat above the clavicles. The hands are short and plump. The contours of the ankles are often obscured. The hair tends to fall out, and the individual hairs are short, dry, brittle, and rather coarse. The speech is slowed, and the voice monotonous. The patients complain of forgetfulness, of inability to think, and of slowing of thought. Their movements are slow and clumsy. Their faces look stupid and sleepy. There is often exophthalmos, with narrow lid slits. They easily gain in weight on a scanty diet and the basal metabolic rate may be from 50 to 60 per cent or more below normal. The vasomotor reactions are sluggish. The temperature is often subnormal. Intractable constipation is common. Gull's disease, or idiopathic myxedema of adults, is most common in women in the third decade of life, the onset being as a rule insidious over a period of years, although sometimes the full-fledged syndrome may develop within a few weeks. Neuralgic pains and pains in the muscles may be the first symptoms, and thickening of the skin of the face appears early. In postoperative myxedema the symptoms develop rapidly. These cases are rare now as a sufficient amount of thyroid substance is left behind when performing strumectomy. In congenital myxedema, due to thyroaplasia, the symptoms appear within a few months after birth. In thyropenia the patients may show only a few symptoms of myxedema.

COMPARISON OF SYMPTOMS OF MYXEDEMA AND GRAVES'S DISEASE

Myxedema

Graves's Disease

(1) Absence of atrophy of thyroid gland.

(1) Enlargement of thyroid, usually diffuse; increased vascularity.

- | | |
|---|---|
| (2) Slow, small, regular pulse. | (2) Frequent accelerated pulse, often irregular. |
| (3) Vasomotors sluggish. | (3) Very excitable vasomotors. |
| (4) Apathetic, quiet look; expressionless. | (4) Anxious look; on fixation of eyes, suggestion of anger in facial appearance. |
| (5) Narrow lid slits. | (5) Wide slits; protrusio bulborum. |
| (6) Slow digestion and excretion; anorexia. | (6) Abundant excretions, appetite usually abnormally great. |
| (7) Slowed metabolism. | (7) Accelerated metabolism. |
| (8) Thick, nontransparent, wrinkled, dry and desquamating skin. | (8) Thin, transparent vascular, moist skin. |
| (9) Short, thick fingers, often broad at the ends. | (9) Long, slender fingers with tapering terminal phalanges. |
| (10) Drowsiness and sound sleep. | (10) Insomnia and restless sleep. |
| (11) Dulled sensation, apperception and action. | (11) Hypersensitiveness, lively apperception and action. |
| (12) Poverty of thought; apathy; lack of feeling. | (12) Flight of ideas; mental excitations; sometimes hallucinations, mania or melancholia. |
| (13) Clumsiness. | (13) Restless haste. |
| (14) Stiffness of the extremities. | (14) Tremor of the extremities; increased mobility of joints. |
| (15) Retardation of bony growth; bones short, thick, or deformed. | (15) Delicate bony structure; now and then soft, thin bones. |
| (16) Constant feeling of cold. | (16) Unbearable feelings of heat. |
| (17) Slow, deep breathing. | (17) Superficial breathing with faulty inspiratory expansion of thorax; tachypnea. |
| (18) Increase of body weight; obesity. | (18) Loss of weight; emaciation. |
| (19) Senile appearance, even in young. | (19) Youthful appearance, especially at the beginning. |

The Parathyroid Syndromes. Removal of or severe injury to the parathyroid glands, with consequent parathyroid insufficiency (hypoparathyroidism), is followed by a characteristic clinical syndrome, known as tetany.

Tetany may be either manifest or latent. In manifest tetany, there are spontaneous attacks of peculiar tonic spasm, which may be limited to certain groups of muscles, or may involve the whole body musculature. In latent tetany, these spontaneous attacks of tonic spasm are not present, but a peculiar hyperexcitability of the nervous system exists, and the attacks of tonic spasm can be easily elicited by artificial means. In manifest tetany the spontaneous attacks of intermittent tonic contractions involve groups of muscles innervated by certain nerves and result in the assumption of certain definite attitudes by the extremities of the patient (obstetrical hand, carpopedal spasm), or they may appear as cramps of the laryngeal muscles (laryngospasm), or of the face and jaw muscles (facial spasm, trismus), or, occasionally, as spasms of other voluntary or involuntary muscles, by increased response to stimulation by the galvanic current (Erb's phenomenon).

The Trousseau phenomenon is easily elicitable in most cases of tetany. As long ago as 1864 Trousseau pointed out that a ligature applied firmly about the upper arm will, in the intervals between attacks of manifest tetany, soon be followed by the typical attitude of obstetrical hand, which usually becomes evident in from two to three minutes after the pressure has been applied.

In chronic tetany certain trophic disturbances are prone to occur, such as transverse furrows and small hole-like defects in the teeth due to faulty development of the enamel, and perinuclear cataract, discoverable by dilating the pupils and examining the lens with the aid of a strong plus glass.

Other forms of tetany are idiopathic tetany of workmen, maternity tetany, gastric tetany, tetany in infection and intoxications, postoperative tetany, and tetany after prolonged forced respiration.

The treatment of tetany is not very satisfactory. If the parathyroid glands have not been too extensively removed, or too severely injured, they may regenerate gradually, especially if the patient is tidied over by calcium therapy or by a restoration of the acid-base equilibrium of the blood. Parathyroid extracts are not very valuable. In severe tetany, both acute and chronic, the attempt has

been made to transplant parathyroid glands in order to effect a cure. Temporary benefit seems certainly attainable in this way, but whether or not a permanent cure can thus be effected is as yet doubtful.

The Thymus Gland Syndromes.—Clinical syndromes due to overfunction of the thymus gland have been described as hyperthymism, status thymicolymphaticus, asthma thymicum, and mors thymica.

In status thymicolymphaticus there is usually enlargement of the tonsils and of the lymphadenoid tissue generally. An enlargement of the thymus gland can be made out on percussion, or on x-ray examination of the chest. Such children often suffer seizures of asphyxiation. The child on crying throws its head back, turns blue, may manifest convulsive jerking, become unconscious, and, later, become relaxed. After the child has become unconscious in the attack, it lies limp and pallid for a few minutes and a little later on may seem quite normal again. Usually such an attack is transient and harmless, although occasionally a child dies in the attack. These attacks are common in infants between the sixth and twelfth month of life. They may be brought on while taking a bath, or while undergoing punishment, or after an injection of antitoxin, or during narcosis. Patients with this condition exhibit a pronounced lymphocytosis in the blood. The skin has a pasty look, the middle incisor teeth may be very large, and the lateral incisors very small. In young adults the distribution of the hairs is often hetero-sexual. The mechanical effects of the enlarged thymus can often be done away with by deep roentgenization or by the application of radium, a careful dietetic hygienic régime. In children, especially, cod-liver oil or syrup of the iodid of iron is often beneficial. Adrenalin should be used when necessary.

The Hypophyseal Syndromes.—The hypophysis cerebri consists of three parts: (1) the anterior lobe; (2) the posterior lobe; and (3) the pars intermedia. The anterior lobe is glandular, the posterior lobe nervous, whereas the pars intermedia consists of an epithelial layer covering the anterior surface of the posterior lobe. The anterior lobe probably produces substances that have to do with growth, especially with the growth of bone, and substances that determine the development of the secondary sex characters. It is probable that the epithelium of the pars intermedia manufactures pituitrin or infundibulin. The posterior lobe or nervous part is made up chiefly of neuroglia, but this contains in its meshes colloidal or hyalin masses

that may possibly represent an internal secretion that is discharged into the cerebrospinal fluid.

When there is overfunction of the hypophysis during the developmental period, before the epiphyseal lines of the long bones have closed, gigantism results. When the overfunction occurs in later life, the clinical syndrome known as acromegaly develops. In some patients, cerebral and genital symptoms appear years before the skeletal changes are noticed. Headache, sleepiness, apathy or disturbances of vision may lead a patient to his physician before there are marked bony changes. Menstrual irregularities, and especially amenorrhea, may be the first symptom in females, or a diminution of libido and potentia may be the first sign in males. The characteristic spacing of the upper medial incisors (hag teeth) is due to enlargement of the maxilla, but the enlargement of this bone is usually much less pronounced than is that of the mandible.

Dystrophia adiposogenitalis is due to hypohypophysism, Froehlich's syndrome. The patient become obese, and the fat is most abundant on the abdomen, buttocks, and proximal portions of the extremities. The skeletal development is faulty. This may appear as acromicria, or if the hypopituitarism occurs very early, dwarfism results. The secondary sex characters fail to develop, or develop abnormally. The genital organs remain in a plastic or infantile state. The skin is usually pale, thin, soft and smooth. Many of these patients suffer from neoplasm, either of the hypophysis itself or of structures in its neighborhood. In association with the above mentioned endocrine symptoms are, often, the general symptoms of increased intracranial pressure and certain neighborhood symptoms, due to local pressure upon the optic chiasm or the optic nerves and the sella turcica. A bitemporal hemianopsia, or a bitemporal hemiachromatopsia, should always make one think of pressure upon the optic chiasm. The occurrence of diabetes insipidus, now known to be easily controllable by hypodermic injections of pituitrin, should also make one think of lesions of the hypophysis or of its neighborhood.

The Pineal Syndromes. Syndromes due to tumors and cysts, involving the pineal body and its neighborhood, give rise to symptoms of increased intracranial pressure, to focal symptoms referable to the midbrain, and to certain symptoms that are believed to be due to disturbances of internal secretion namely, premature puberty and changes in carbohydrate tolerance.

The Suprarenal Syndromes.—The human suprarenal gland represents a fusion of two entirely separate organs. Thus, the medulla of the suprarenal gland is a part of the larger chromaffin system, whereas the cortex of the suprarenal gland is a part of the larger interrenal system.

Underfunction of the chromaffin system is met with in Addison's disease, in many acute infections and intoxications, and in certain other states. Overfunction of the chromaffin system not, as yet, well understood, may play a part in the production of chronic arterial hypertension. Similarly, both underfunction and overfunction of the interrenal system cause certain abnormal clinical manifestations.

Addison's disease consists of an idiopathic anemia associated with bronzing of the skin, digestive disturbances, nervous disturbances and asthenia. The patients develop a chronic cachexia and die. Tuberculosis, syphilis, or neoplasm of the suprarenals are also the causes.

Pseudohermaphroditism is a condition supposed to be due to a congenital form of hyperinterrenopathy.

Premature puberty, *pubertas praecox*, is believed to be a form of hyperinterrenopathy.

In the adult hirsutism, or virilism, syndrome we have to deal with a late, or adult form of postnatal hyperinterrenopathy. Women between sixteen and twenty are most often affected. Physically and mentally they often suggest the masculine type (egotism, overbearing tendency, aggressiveness). Such women often grow hair upon the abdomen, chest, shoulders, back, and extremities, and have menstrual disturbances. In the later stages of the disease the overfunction of the interrenal system may give place to a hypofunction and signs like those of Addison's disease may appear.

The Pancreatic Syndromes.—The pancreas, besides producing an external secretion possesses tissue (the islets of Langerhans) that manufactures an internal secretion that is necessary for the normal metabolism of carbohydrates. This secretion has special reference to diabetes mellitus.

The Gonadal Syndromes.—The interstitial cells of the testes and ovaries produce hormones responsible for the development of the secondary sex characters and for their maintenance during adult life, and also influence skeletal growth and the psychic functions.

When castration is performed in childhood the penis, the prostate

and the seminal vesicles remain small, and the patient never develops libido or potentia (eunuchism). After puberty, however, the external genitals need not dwindle much, but the prostate undergoes atrophy; libido and even potentia may persist for a time. When coitus remains possible there may be ejaculation of prostatic secretion. Psychically the courage and aggressiveness of the normal male are usually lacking, though the intellectual powers may be great and artistic ability may not be decreased. Physically, two types of eunuchs are distinguishable: (1) a tall thin type; and (2) a shorter, obese type with fat distribution as in hypophysial dystrophia adiposogenitalis. In both types the pelvis broadens, the skin is sallow, there is a sleepy look to the face, and there is a tendency to hypotrichosis. Treatment consists in the transplantation of sex glands but it is too early as yet to speak with confidence regarding results.

Climacteric Syndromes.—They consist on the physical side of a slowing of metabolism with tendency to obesity and signs of excitation or of loss of inhibition in autonomic domains (hot flushes; respiratory, cardiac and digestive disorders). There are marked neurasthenic, psychasthenic and even psychotic symptoms, mentally.

J. ROSE.

GUNewardEN, H. O.: The Etiology of Effort Syndrome. *Lancet*, London, 1920, i, 885.

The patients show disturbed sleep, terrible dreams, worry, anxiety and a host of other symptoms. The author is convinced that the nervous element is a very important factor both in the production and aggravation of this condition. Traumatic neurasthenia, insomnia, the condition of the "morning after the night before" produce the "effort syndrome" at least transiently.

VERAGUTH, O.: Present Status of Psychotherapy (Ueber den jetzigen Stand der Psychotherapie). *Schweizer Arch. f. Neurologie und Psychiatrie*, 1921, viii, H. 1, p. 29.

Psychotherapy endeavors to help the soul of man, that is, it tries to modify the functioning of the entire body, but more especially of

the brain and the cerebral cortex. The patient's nutrition is changed, his senses are routes of invasion of the psyche. Trodden paths of excitement are obliterated and new ones established. The word is the means of influencing the patient. Stimuli reaching the brain must be regulated as to quantity and quality. These stimuli may go forth from the physician or from other parts of the surrounding. The aim is to get away from the disease and also later on from the physician. The physically diseased will make himself independent of the doctor; in psychotherapy the danger of clinging to him is great. This treatment includes popular psychotherapy, masked suggestion, disciplinary treatment, memory-therapy, association therapy, employment, concentration, rest, distraction, psychoanalysis, etc.

Popular psychotherapy is a complex of impressions made by the physician when the patient first meets him, the way he takes the case and makes the examination and so forth. It does not, of course, do to try to influence conditions of severe physical exhaustion by word, but the lack of concentration, and restlessness, resulting from this state may be influenced by the work of the suggesting physician. Dejerine isolated his patients, Bruns and Zieken ignored many symptoms, Binswanger used psychic obstinence, and in fasting by isolation the hysterical patient is deprived the compassion of friends. A psychotherapist must have educational even more than medical training. Good broad general education and information on art, sport, and all those questions entering into social life, and the information of the patient in various strata of life are essential. The personality of the physician is one of the most necessary features in psychotherapy.

Dubois is of the opinion that persuasion appeals to the common sense of the patient. Babinski presumes more suggestion in this method of treatment. Psychocatharsis and psychoanalysis is based on the function of the subconscious. The author says that psychotherapy is very undeveloped, as yet, and that a more refined psychoanalysis is necessary to give stress to the work used in treatment.

The doubt as to lasting results is not justified. The author cites several cases of fifteen years ago where severe neuroses have been cured. The reproach has been made that these treatments take much time and money, but the war neuroses have recalled quicker methods, and in fact most cases may be said to recover, often after a few sessions. Many cures are only partial, but still worth while even

though it is not possible to entirely change the psychic structure of a patient.

STEARNS, W. G.: **Chronic Focal Infection as Affecting the Nervous System.** *Illinois Medical Journal*, 1921, xxxix, No. 2, p. 117.

In a person with chronic furunculosis inoculation with an excessive quantity of killed staphylococci furunculosis will grow worse, fever, malaise, etc. setting in. In a tuberculous person the injection of an overdose of tuberculin will cause general reaction and an inflammation in the lungs or other sites of the infection. Some persons develop pneumonia after an acute alveolar abscess, tonsillitis, or furunculosis; those with latent tuberculosis or syphilis often have violent exacerbations after such intercurrent infections. In tabes a tonsillitis, or other infection, "is accompanied by the appearance or violent increase of the most distressing symptoms of that disease, and, on the other hand the eradication of a chronic infection is often followed by the improvement or disappearance of many of the symptoms and a period of months or years of quiescence." In paresis the effect of intercurrent infections is very unfavorable, but the subduing of chronic infections is not nearly of so favorable an effect as in tabes. The author has had very good experiences from eradication of chronic foci in nervous syphilis. In progressive muscular disease there is marked improvement on removal of the foci. Multiple sclerosis has by tonsillectomy and removal of abscessed teeth been cured, even where motor incapacity and bladder symptoms had been present. One patient could after years walk without a cane, after the operation. Myelitis is commonly found associated with acute or chronic infections and intoxications, especially tuberculosis and gonorrhea. It will follow furunculosis and acute exanthemata. Paralysis agitans has been known to follow acute articular rheumatism. In chorea, where irritable weakness of the nervous system is prevalent, more than in other diseases, an acute infection is seen. Neuralgias and neurites are easily influenced by removal of foci of infection. Extension of infection to the Fallopian canal will often cause paralysis of the seventh nerve. The toxin of tetanus has been shown to reach the cord through the sheaths of the spinal nerve fibers, and rabies virus follows the same route. Chronic focal infections

play a prominent part in persons of inherited or acquired mental instability; they will quickly become deranged by toxic conditions. This is most frequently seen in the arteriosclerotic and senile cases "where confused dilusional and often delirious states develop." The patient will often quickly get well on detoxication.

Eradication of the foci of infection in the mouth and throat have been very useful in dementia præcox and manic depressive insanity.

STOKES, J. H., AND OSBORNE, E. D.: **Relative Effectiveness of Various Forms of Treatment in Neurosyphilis. Observations of the Comparative Value of Routine Intravenous Treatment, Spinal Drainage and Arsphenamized Serum Intraspinally.** *Journal of the American Medical Association*, March 12, 1921, lxxvi, No. 11, pp. 708-710.

Response of the Spinal Fluid Wassermann Test to Spinal Drainage.—Of twenty-five patients treated by routine Wassermann with drainage, twenty-one had a positive Wassermann reaction before treatment was begun. Following a course of spinal drainage, nineteen still had positive Wassermann reactions on the spinal fluid. The cell count, contrasted with the Wassermann reaction on the fluid, responded very well to drainage. The average count before drainage was 61, and 19 at the conclusion of the treatment.

Study of the Patients with Neurosyphilis Treated by Spinal Drainage and Subsequently by Intraspinal Therapy.—Ten of the cases were put on the Swift-Ellis-Ogilvie form of intraspinal therapy. The average number of intraspinal injections given was five, the same as the number of the spinal drainages. Nine of the patients still had strongly positive fluid Wassermann reactions and marked pleocytosis when intraspinal treatment was begun. At the completion of five intraspinal treatments, five patients showed a complete reversal of the spinal fluid Wassermann reaction to negative as compared to two after drainage, with a marked fall in cell count to 11 or below.

Comparison of Spinal Drainage with Routine Intravenous Therapy.—A comparative study was undertaken of fifty cases in which only intravenous arsphenamin and mercury as injections were administered. The same number of arsphenamin injections and approximately the same amount of mercury were given each patient in

this group as were given those who received drainage. The average cell count before treatment was 73 cells. At the conclusion of the treatment the count was 20 cells. Of the fifty patients without spinal drainage, thirty-four gave positive Wassermann reactions on the spinal fluid before treatment. Ten of these thirty-four were Wassermann negative at the completion of their course. It seems probable, therefore, that routine standard treatment is as effective as routine standard treatment plus spinal drainage.

R. H. BENNETT.

GOEDDE, H.: **Neural Progressive Muscular Atrophy** (Beitrag zur neuralen Form der progressin Muskeltrophie). *Zeitschrift fur die gesamte Neurologie und Psychiatrie*, 1921, lvi, p. 84.

Various types of progressive muscular atrophy used to be classed under the same head. It was Hoffmann, who, after some better distinctions had been made previously, changed the name of neurotic progressive muscular atrophy to that of neural progressive muscular atrophy as the disease is not a neurosis. This condition is a rare one and distinctly hereditary and familial, except in some few sporadic cases. Men are more frequently affected than women. The disease comes on slowly, mostly during early childhood, or during the third or fourth decade. Usually it first seizes the lower extremities, and more especially the exterior hallucis longus, extensor digitorum communis and the small muscles of the foot, club-foot ensuing. Next the muscles of the calf are involved. Some years later the muscles of the hand, interossei, thenar hypothenar and the fore-arm are afflicted. The thigh and upper arm are rarely diseased. In some cases the process starts simultaneously both in hands and feet. Trunk and face remain normal; tendon reflexes remain the same. Sensibility may become deficient, vasomotor disturbances are frequent, but not always constant.

Postmortem examinations regularly show degeneration of the peripheral nerves and often also of the spinal cord. Cerebrum, cerebellum and pons were unaffected. Functional activity, especially of the upper extremities, is well preserved in spite of the atrophy.

Other types of progressive muscular atrophy are the spinal of

Aran-Duchenne, which usually starts with the hands and extends to the shoulders, the forearm, back and chest. It is not restricted to the extremities. Sensibility usually begins between thirty and fifty. is often intact, but not familial.

There is a subtype named after Werding-Hoffmann which usually is hereditary, familial and starts during early childhood. The disease runs its course in about four years, starts in the pelvic and dorsal muscles, reaching on to the ileospsoas and quadriceps.

Myopathic progressive muscular atrophy or dystrophia musculorum has some similarity with neural atrophy. It is generally hereditary and familial, runs a slow course, and starts during the first twenty years. It, however, befalls the pelvic or shoulder region. Pseudohypertrophy is often seen in these cases. There are no fibrillary contractions. Similar muscular atrophy is seen in syringomyelia, but they are rarely symmetrical. Trophic disturbances are frequent.

In amyotrophic lateral sclerosis, fibrillary fascicullary muscular twitching occurs aside from atrophy. The condition is purely motor. Chronic anterior poliomyelitis has a more sudden onset, and atrophy is preceded by paresis and paralysis, while in progressive muscular atrophy there will be little deficiency.

Chronic multiple neuritis greatly varies.

The etiology of neural muscular atrophy is based on endogenous hereditary characteristics. Lack of resistance of the nervous system causes progressive anatomical degeneration. Immediate causes may be infection, intoxication, overexertion. In the author's case, and in others that have been reported, the disease befell the male members of the family only.

Electricity, hydrotherapy and massage have often been recommended, but are of little influence. Certain exercises have proved beneficial: orthopedic apparatus may be useful. The Foerster operation is said to have greatly improved the patient's gait. Tendinoplasty and redression, and consequent resection of a bone wedge is advisable.

INTERNATIONAL MEDICAL DIGEST

Vol. II

SEPTEMBER, 1921

No. 9

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	770
Section on General Medicine - - - - -	771-814
Section on Laboratory and Research - - - - -	815-830
Section on Pediatrics - - - - -	831-841
Section on Roentgenology and Electrotherapeutics - - - - -	841-850
Section on Neurology and Psychiatry - - - - -	851-864
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-xxvi
Index of Subjects - - - - -	xxvi-lxxv

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1921, by W. F. Prior Company, Inc.

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHESKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATSON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

SEPTEMBER, 1921

No. 9

SECTION ON GENERAL MEDICINE

FENLON, R. L.: **A Diet for Pernicious Anemia.** *Journal Iowa State Medical Society*, Feb. 1921, xi, 50.

As a result of experimental investigations carried out at the University Hospital, Iowa City, the following diet was formulated. Iron-rich foods are given to supply organic iron to the body. Because a low gastric acidity or achylia is generally present in this disease, the author recommends the giving of 10 c. c. of a 1 per cent hydrochloric acid after meals; after meals, so as to more or less permeate the gastric contents. The acid should be given through a glass tube to protect the teeth. Since the blood count is low foods rich in nucleoprotein should be supplied. For this purpose, the various animal livers such as calf, beef and hog are used. As some cases show some degree of kidney involvement, it is best to avoid food which may irritate the kidneys—prunes, cranberries, plums, grapes, and excessive amounts of meats, meat gravies, coffee and tea.

FAUGHT, F. A.: **A Rational Interpretation of Blood-pressure Findings.** *New York Medical Journal*, 1921, cxiii, No. 3, p. 93.

Sphygmography is useless, if systolic pressure alone is considered. Persons suffering from widely different conditions involving the dynamics of the circulation, may be found to have the same average maximal (systolic) pressure. They would however, demand an entirely different treatment.

The systolic pressure must be supported by the diastolic, for it is more accurate than the systolic.

"The cardiac rate together with the diastolic pressure may convey more information than the latter alone".

In order to gain a clear view of diagnosis and prognosis, a guide to treatment, and a demonstration of the effect of treatment, a complete blood-pressure record is necessary.

"The pulse pressure has often a profound significance and may of itself clearly point to the diagnosis."

JORDAN, E. O., AND SHARP, W. B.: **Influenza Studies. Effect of Vaccination against Influenza and Some Other Respiratory Infections.** *Journal of Infectious Diseases*, April, 1921, xxviii, No. 4, p. 357.

These authors studied the prophylactic value of a vaccine containing B. Influenza, streptococci and pneumococci. In all 6066 persons were studied of which 2873 were vaccinated; 3193 not vaccinated. Rhinitis and bronchitis developed with equal frequency in the vaccinated and in the unvaccinated. Influenza occurred 118 times or 4.1 per cent in the vaccinated, 152 times or 4.8 per cent in the unvaccinated. Seven pneumonias with 2 deaths occurred among 118 vaccinated, and 12 with 2 deaths among 152 unvaccinated influenza cases. Pneumonia not associated with influenza occurred 6 times in the vaccinated and 13 times in the unvaccinated. While the incidence of pneumonia and influenza is somewhat less frequent among the vaccinated cases, nevertheless the difference is not great. They believe that the vaccine did not confer any considerable degree of protection against influenza.

M. M. BANOWITCH.

GRAY, G. A., AND MEYER, B. I.: **Diphtheria Carriers and Their Treatment with Mercurochrome.** *Journal of Infectious Diseases*, April, 1921, xliiii, No. 4, p. 323.

An outbreak of diphtheria occurred at the U. S. Naval Hospital, Mare Island. All the patients, personnel, and civilian employes were examined and Schick tests, and nose and throat cultures were

made. Of 544 Schick tests, 104 or 19.1 per cent were positive, and these were immediately given 1000 units of antitoxin and a course of three toxin-antitoxin injections was commenced. Of 680 persons examined culturally, 162 or 23.8 per cent, were found to be carriers. The author treated 90 carriers thoroughly and systematically. The germicide used was solution of mercurochrome 220 in $\frac{1}{2}$, 1 and 2 per cent strengths. The minimum standard set before a patient became carrier-free was three consecutive negative cultures taken at 48-hour intervals, the third culture being secured at least twenty-four hours after the last local treatment. Eighty-eight of the 90 patients so treated were made carrier-free with an average of 19.1 treatments, and 12.7 sick days. The remaining 2 resisted all efforts to make them bacilli free.

M. M. BAXOWITCH.

NEWBURGH, L. H. AND MARSH, P. L.: **The Use of a High Fat Diet in the Treatment of Diabetes Mellitus. Second Paper: Blood Sugar.** *Archives of Internal Medicine*, June, 1921, xxvii, No. 6, p. 699.

In a previous paper the authors have outlined the principles of the use of a high fat diet in diabetes, given detailed instructions for its use, and reported the effects of this diet in the control of glycosuria and acidosis in a series of 73 cases. The present paper deals with a study of the blood sugar in 45 of these patients in whom sufficient data was at hand. The cases are divided into four groups. The first group, consisting of 21 patients, was treated by the routine fat-high diet, and the glycosuria was reduced to within normal limits in each case. The periods of observation varied from five to one hundred and fourteen days. The second group consisted of 7 patients who suffered from diabetes and well-marked nephritis as well. In spite of the tendency of nephritis to keep the blood sugar at an abnormally high level, all of these patients showed normal blood sugar figures after a period of high fat, low protein and low carbohydrate diet. The third group consisted of patients who were allowed periods of higher protein intake with subsequent high fat, low protein rations. In each case the more liberal protein period was accompanied by an increase of the glycemia, which disappeared with

a reduction of the protein and increase of the fat. There were 5 patients in this group. The last group was made up of patients who did not show satisfactory results. Two of these had severe complicating diseases and a third was suspected of not adhering to his diet.

T. HOWARD.

LUTTINGER, P.: **The Use of Pertussis Vaccine.** *New York Medical Journal*, April 6, 1921, cxiii, No. 11, p. 554.

In order to obtain successful results in the treatment of whooping cough with vaccines, one must secure the following:

(1) A fresh Bordet-Gengou bacillus vaccine, from a reliable laboratory.

(2) Relatively high doses should be administered, subcutaneously, at regular intervals and as long as the whoop persists. A child, one year old, should receive five hundred million bacteria as the initial dose. Forty-eight hours later a second dose of one billion is given, and after another lapse of forty-eight hours another dose of two billion is injected. These three doses are usually sufficient for prophylactic cases in which no symptoms of any cough whatever are found. For therapeutic purposes it may be necessary to give another series of three injections after an interval of from three to four days. The dose of these injections is four billion, eight billion, and ten billion, respectively, given every day. It is rarely necessary to give more than six injections.

(3) Strict attention to hygiene and feeding so as to insure a maximum of response to vaccine stimulation.

J. ROSE.

SHAMBAUGH, G. E.: **The Nasal Cavities and Asthma.** *Illinois Medical Journal*, 1921, xxxix, No. 1, p. 10.

The author calls it unsatisfactory and unscientific to assume that asthma is always caused by pathological nasal conditions. A great many cases may be benefitted, attacks improved and even permanent cures reached by treatment of the nasal condition. Shambaugh does not consider the relation between nasal conditions and asthma to be a reflex neurosis, but rather an anaphylactic reaction.

Hyperplastic ethmoiditis is the disorder mostly associated with asthma. Operations made for it may cause amelioration by the elimination of foci harboring bacteria and their toxins.

Hyperplastic ethmoiditis does not always give tangible evidence, and it is often necessary to make a forced inspection of the floor of the ethmoid in the middle meatus by anterior rhinoscopy or by the post-nasal minor.

In many cases exenteration of the ethmoid will cure asthma; in others it recurs, when polypi reform. Where frontal and maxillary sinuses are also involved in the polypous process the operation, however, seems to have but little influence on the asthmatic state.

HERRICK, W. W.: Serum Treatment of Lobar Pneumonia. *Medical Record*, June 4th, 1921, xcix, No. 23, p. 948. (Read before Medical Society of the County of New York, March 28th, 1921).

Stimulants in pneumonia often irritate, and interfere with sleep. Ill-timed examinations are an undue burden upon the cardiovascular and respiratory systems. "A few particles of the patient's own antibody are worth all the drugs in the world."

The lecturer is of the opinion that a great number of cases will recover. Another great number will die, whatever is done, but there are intermediate cases where effort is worth while.

The function of the heart, respiratory system and internal or cellular respiration are severely handicapped, and struggling.

As to serum treatment:

During 1918 and 1919 the lecturer came into frequent contact with 14 different chiefs of medical services, in as many hospitals. These chiefs represented the best medical opinion of the country. Serum treatment had been made obligatory for Type I by the Surgeon-General's office and was carried out under the most favorable conditions. But one of these fourteen men was enthusiastic about serum treatment of pneumonia. None was opposed to it. The prevailing attitude was one of inquiry. Statistical studies were reported from the camps in the U. S. A. In considerable series of Type I cases not treated by serum, the mortality was less than 10 per cent; in a series treated by serum, the mortality was practically the same. Certainly the Type I pneumonococcus produced mild infections among

the troops in the Southeastern Department in 1918 and 1919. The lecturer thinks the same can be said of civilian cases observed in New York since the war. Further cases of Type I would have to be reported to get a fair judgment of its mortality. It seems that the use of serum in and about New York is not as extensive as it had been when first introduced. In one hospital serum is not given, as it is considered of little benefit, and even dangerous, appearing to cause an increase of cases of empyema, meningitis, etc. Herrick thinks that serum should be used in every case of infection, with pneumococcus Type I. The protective and curative effect of serum in experimental pneumococcus infections in animals cannot be denied, and the therapeutic effect in many cases in man, cannot be disputed. When given before the third day of the disease the attack may surely be cut short in a most convincing fashion, "and a stormy onset, promising a five to nine day struggle, eventuate in an affair of two to four days". The effect is less striking after the third or fourth day, but often is satisfactory.

Some of the effect of serum in infections with pneumococcus Type I is probably general or non-specific, and similar to the effect of injections of typhoid bacilli in acute arthritis, or of alien protein in typhoid fever. Pneumococcus Type I grows in its own antiserum, the evidence of experiment is, however, in favor of a specific effect.

The lecturer does not think that "the serum treatment of the Type I pneumonia is destined to endure". The method is too complicated and time-consuming. His prophecy is that a concentrated solution free from the objectionable serum proteins, containing antibodies for all the recognized pathogenic types of pneumococci will be substituted. It will avoid typing.

NILES, W. L.: The Serum Treatment of Lobar Pneumonia. *New York Medical Journal*, June 15, 1921. (Read before Med. Assn. of Greater City of New York, Feb. 21, 1921, and before Queen County Med. Soc., March 29th, 1921.)

Specific treatment has been employed in influenzal pneumonia: none can be said to have had good results. In bronchopneumonia the causative organisms are very numerous and exhibit such diverse immunologic reactions that specific therapy will not likely succeed.

In serum treatment for lobar pneumonia each individual case must be carefully diagnosed etiologically. This can be done in six to eighteen hours, during which time horse serum sensitization tests can be carried on. There is no good reason for administering either Type I antipneumococcal serum or a polyvalent serum before the type of infection has been ascertained. Serum administration may cause severe reactions, which ought not to be produced if no reasonable benefit is likely to be derived. No polyvalent, so far, has shown more than slight curative properties. The only type of pneumococcus for which an effective antiserum has been developed is the Type I, and serum therapy should therefore be limited to such proved infections. The mortality in this type has been definitely lowered by the use of serum. The exceptions for its use are: (1) young children whose intoxication is mild and the difficulty of treatment great; (2) adults first seen late in the disease, mildly intoxicated and showing improvement; and (3) elderly patients.

The average mortality in untreated Type I varies at different seasons, but is about 25 per cent. In several series of serum treatment it was 10 per cent. Not all reports have been so favorable, but in these cases the treatment had not been in accordance with the present accepted standards. The defects were: (1) insufficient doses, from 25 to 50 c. c. often being given; (2) infrequent doses, these being given no oftener than once in twenty-four or forty-eight hours; and (3) inaccurate typing.

Immediately after making the diagnosis of lobar pneumonia a specimen of the sputum is secured. If sputum cannot be secured, it may be necessary to resort to blood culture, a puncture of the lung which is without danger, or to determination of the soluble precipitins in the urine. The patient is questioned for a history of asthma or hay fever, because such patients are liable to be more sensitive to serum. Data on previous injections of antisera for diphtheria, meningitis or tetanus are sought. A skin test for sensitiveness to horse serum is then made, scratch or intradermal method, the latter being more sensitive. Sterile diluted horse serum, 0.02 c. c. diluted with salt solution, one to ten, is injected into the skin. A control of a like amount of sterile salt solution is injected nearby. If the swelling disappears within a few minutes the test is negative; if positive, an urticarial wheal develops within from five to ten minutes, and becomes surrounded by an area of erythema, which reaches its max-

imum within an hour, then rapidly fades. Such reactions are rare, but if they do occur, the patient should be desensitized by subcutaneous injections of very small amounts of horse serum at half-hour intervals, doubling the dose at each injection. If, as usual, no reaction occurs within an hour 1 c. c. of normal horse serum is injected subcutaneously. If the Type I is found the serum is at once given intravenously by a gravity apparatus or one of those used for salvarsan injections. It is important (1) that the serum be warmed and kept warm, so that it will reach the vein at body temperature; and (2) the first 15 c. c. should be injected steadily, but very slowly, spending fifteen minutes on it. Watch increase of pulse rate, cyanosis, pallor, urticaria, difficult breathing. If these symptoms occur, suspend injection for ten or twenty minutes. The rest of the dose may be given more rapidly. The dose must be large, 100 c. c. for the initial injection. The injections are repeated every eight hours till the temperature is below 102° F. (38.89° C.). After the injection a rise of temperature will generally set in and last two to three hours.

Three types of reactions may develop—*anaphylactic*, *thermal*, and *serum sickness*. The first is rare; if it occurs it will be at once or within fifteen minutes. It is marked by intense dyspnea, restlessness, anxiety, flushing followed by cyanosis, cough, sweating and, after a few minutes, urticarial eruption. Antidotes are 0.6 c. c. epinephrin or 0.5 mg. atrophin sulphate, or both hypodermically. Subsequent injections are usually better tolerated. The thermal reaction is not harmful, except in elderly sclerotic subjects. Ten per cent of cases of serum sickness show severe symptoms, such as urticaria, erythema, slight rise of temperature, aches and pains, sometimes at intervals of several weeks. Albuminuria has been seen to accompany it. The occurrence should not deter one from using serum.

STIVELMAN, B. P., AND ROSENBLATT, J.: **Multiple Fluid Collections in the Chest in the Course of Therapeutic Pneumothorax.** *American Journal of the Medical Sciences*, February, 1921, clxi, Part 2, No. 587, p. 229.

Five instances of multiple fluid collections occurred in 32 cases of hydropneumothorax. These sacks cannot be detected by physical

examination. They are recognized only by the characteristic multiple fluid levels shown on roentgenologic examination. Two or more independent hydropneumothorax pockets may be produced as a result of attempts to induce pneumothorax at different levels or a localized spontaneous pneumothorax may occur adjacent to a pocket of artificial hydropneumothorax. The cause is adhesions which spread out from the visceral pleura, in hammock fashion, across the pneumothorax area to the chest wall. They may be present before the induction of the pneumothorax and may occasionally be the result of thickened interlobar system, or they may be newly formed as a result of organization of the exudate. A coexisting fluid containing cavity with a hydropneumothorax may also give rise to multiple fluid levels.

A. T. MAYS.

VAN ZWALUWENBURG, J. G., AND GRABFIELD, G. P.: **The Tonsillar Route of Infection in Pulmonary Tuberculosis.** *The American Review of Tuberculosis*, March, 1921, v, No. 1, p. 57.

The authors note the occurrence of an apical shadow, which they describe as a clear line usually seen along the inner surface of the second rib and separated from its shadow by a clear space of from 3 to 4 mm. (.12 to .16 inch) in width. It may also be seen at times beneath the first rib and sometimes it extends further into the axilla, or becomes continuous with the shadow of the thickened pleura left by a preceding pleural effusion. In width it varies from an exceedingly tenuous line to one of the thickness of from 3 to 4 mm. Its density varies, sometimes it is rarely perceptible and at times standing out with striking distinctness. This is called a pleural cap. Beginning with the scarcely perceptible line in the position indicated, one can follow, after progressive pictures, (1) its increased thickness, (2) an indefinite irregularity or mossiness of its visceral surface, followed by the formation of conical or tent-like projections with the apices directed away from the pleural surface, (3) the formation of long linear shadows from these apices directed toward and reaching the upper cornu of the hilum shadows, and (4) the formation of grouped shadows in the periphery of the hilum or in the parenchyma of the lung. The authors summarize as follows. A shadow that we believe represents a thickening of the pleura over the apex of the

lung has been described and its relationship to tonsillar and cervical gland tuberculosis has been studied. Such an apical pleuritis is seen in at least 10 per cent of all x-ray examination of the chest coming to the University Hospital Laboratory. Such apical pleuritis occurs most frequently in cases showing tuberculous deposits in the faucial tonsils (93 per cent). With the cervical gland tuberculosis this lesion is recognizable in 59 per cent of all cases and probably occurs in a large number, being obscured by the shadows of pulmonary tuberculosis, 71 per cent in this group showing either this lesion or frank tuberculosis of the lung or both. Cases without tuberculosis of the tonsil show an apical pleuritis in only 11 per cent of the cases.

It is suggested that a common route of infection may lie through the tonsil and cervical lymphatics to the apical pleura and thence into the lung. If this hypothesis is accepted it offers a singularly satisfactory explanation for the frequency of apical lesions, the predominance of right-sided lesions, of the pathogenesis of tuberculous pleurisy with effusion and other obscure features of this infection.

C. A. SCHMID.

FISHBERG, M.: **Discernment of Intrathoracic Neoplasms by Aid of • Diagnostic Pneumothorax.** *Journal American Medical Association*, February 26, 1921, xxvi, No. 9, p. 581.

In cases in which there is no pleural effusion the technic is simple. The usual technic of artificial pneumothorax is employed, injecting several hundred cubic centimeters of air or nitrogen into the pleural cavity using any of the standard apparatus and a manometer for the purpose. When the lung is collapsed the solid tumor is clearly seen in the plate. In those in whom an effusion has occurred the fluid is first withdrawn with a Potain. The pneumothorax apparatus may be connected with the needle which is already in the chest and air allowed to flow in. In cases in which the fluid is purulent the needle used for tapping is withdrawn and an ordinary pneumothorax needle is inserted. The amount of gas allowed to flow into the pleura varies in accordance with the condition of the patient. If the patient is comfortable as much as 1000 c. c. of air may be allowed to run in. If he suffers from severe dyspnea or pain, less is injected. The author always stopped when a positive pressure registered in the manometer reached 10 c. c. of water.

Immediately after the pneumothorax has been induced the patient is examined fluoroscopically and one or more roentgenograms made. The plates should be taken with the patient in the erect position.

VAN ZWALUWENBURG, J. G., AND GRABFIELD, G. B.: **Apical Pleuritis and Its Relationship to Pulmonary Tuberculosis.** *American Review of Tuberculosis*, June, 1921, v. No. 4, p. 323.

In concluding their article the authors state:

(1) Pleural shadows over the apices in various forms occur with great frequency.

(2) By insensible gradations these shadows pass into those of frank pulmonary tuberculosis.

(3) The demonstrated association with pulmonary tuberculosis demonstrates a prevaillingly tuberculous nature.

(4) Chronologically the apical pleuritis precedes pulmonary involvement.

(5) The prevailing tendency is to spread (*a*) to the opposite apex and (*b*) to the underlying lung.

(6) The infection reaches the pleura through the cervical lymphatics.

C. A. SCHMID.

KALB, G.: **Tuberculous Empyema.** *American Review of Tuberculosis*, June, 1921, v. No. 4, p. 339.

The author, after discussing the bad prognosis of tuberculous empyema in pulmonary tuberculosis and uniformly bad results with surgical measures, makes a plea for the Murphy aspiration or siphonage treatment which gives better results in every way. The method is as follows.

All of the purulent material that is possible is removed by aspiration or siphonage or both combined. A large needle is used. Then from 1 to 12 ounces of a 2 per cent formaldehyde in glycerin solution is injected, the amount varying with the amount of fluid with-

drawn. One never introduces more than half the fluid withdrawn, and is careful the first time to inject too little rather than too much. Air is then introduced until the manometer reading is near the negative point, or, if it is a case of pneumothorax (artificial) the pressure is raised to that usually given this particular patient. In from forty-eight hours to one week after the first treatment, the patient is again aspirated, usually of twice as much fluid as was injected, the character of which will be altered to that of seropurulent. More of the formaldehyde solution is injected and in from 3 to 10 days again removed. This is continued until the character of the fluid changes to that of serosanguinous when it is sterile, and should be left, as it is harmless and will ultimately be absorbed. The original Murphy treatment varies from this in that he uses only a half ounce of the glycerin formaldehyde solution. Murphy believed that it killed the organisms in the pus, and kept up a polymorphonuclear leucytosis. These indicate the increase of phagocytes and the formation of serum that contain trypsin similar to pancreatic trypsin and convert albuminoids to albumoses which are soluble and the absorption of the exudate is begun.

C. A. SCHMID.

AARON, C. D.: **Active Immunization by Means of Nonvirulent and Nontoxic Living Tubercle Bacilli.** *New York Medical Journal*, 1921, cxiii, No. 1, p. 91.

Metchnikoff found the difference of virulent and deadly strains of tubercle bacilli and those comparatively inoffensive. Anyone being attacked by one of the milder ones in youth, acquires immunity to this as well as to virulent strains.

Active immunization aims at the production of protective substances, the antibodies, in the blood serum of a patient. Antibodies should have such activity as to be capable of eliminating infection already present. It was Koch's fundamental idea to employ, as far as possible, living tubercle bacilli. Jenner, in his method of inoculation against smallpox, had shown that the natural process could be successfully imitated.

The organism produces antibodies not only against living bacteria, which may have penetrated into it, but against any kind of foreign

cells containing protein substances; it therefore produces antibodies against dead bacterial matter. Prolonged treatment with dead diseased germs are applicable to many diseases.

These inoculations with dead bacteria, however, do not afford complete security against infection. They render the illness short and mild when inoculated. The author says, that the animal body fights out the battle with the infecting parasites in their vigorous state, and the dead bacteria are then injected into the body as relatively harmless bodies.

Immunity is in many cases, however, only attained by a subsequent administration of living bacteria; because they alone can provoke the development of all the different kinds of antibodies.

The danger from this method has been contended with in injecting the virus, not into the mucous membrane, but into the muscle or under the skin, where the germs meet unfavorable conditions.

Piorkowski in his turtle tubercle bacillus vaccine has found a means of protection for people threatened and a cure for those already afflicted with tuberculosis. "It is harmless even in large doses, has a wide range of usefulness, and is simple in application. Complete immunization against tuberculosis is established by a single injection into the gluteus maximus muscle."

This is a vaccine from the living tubercle bacilli, and can be applied to human beings without danger of infection.

WELLER, C. V.: **The Incidence and Histopathology of Tuberculosis of the Tonsils Based on Eight Thousand Six Hundred Tonsillectomies.** *Archives of Internal Medicine*, June, 1921, xxvii, No. 6, p. 631.

Routine sections of all tonsils removed at the University of Michigan were made by Weller. The tonsils were cut vertically and it was estimated by certain tests and from a study of similar work by other observers that the presence of tuberculous lesions in the tonsil would be overlooked in but a small proportion of cases by failing to make serial sections. Active tonsil tuberculosis was found in 204 cases in the series of 8,697 consecutive specimens. This corresponded to 2.35 per cent. The incidence in respect to sex showed tonsil tuberculosis to be slightly more common in females than in males at

practically all ages. There was shown to be some increased incidence after the years of infancy and early childhood, although the inclusion of special groups, such as institutional children and nurses and medical students, both of which groups showed a comparatively high incidence, vitiated to some extent the value of the study of age incidence. The frequency in nurses has previously been noted, and is attributed, as it is in the case of internes and medical students, to primary focal tuberculosis. The youngest patient was two and the oldest fifty-nine.

As a result of the histological study of the lesions, Weller divides tonsillar tuberculosis into three types: focal crypt infections, ulcerative lupus-like lesions, and diffuse miliary tuberculosis. The crypt infection is the most common type. It is usually unilateral and involves one or more crypt area only. The lymph follicles are seldom involved. Some of the crypt infections were considered secondary infections from other respiratory tract tuberculosis, but most of them appeared to be cases of primary focal tonsil tuberculosis. The ulcerative lupus-like lesions result from the coalescence of crypt infections at the mouths of the crypts or from direct extension from neighboring surfaces. The diffuse miliary tuberculosis is usually bilateral and was found to involve the pharyngeal tonsils as well when these were examined. The tubercles were found widely scattered, involving the follicles and germ centers almost exclusively. They are probably due to a hematogenous dissemination. Mixed types were sometimes found, as in patients with open pulmonary tuberculosis, in which autoinfection may be associated with hematogenous miliary tuberculosis, giving a combination of crypt infection with diffuse miliary tuberculosis.

T. HOWARD.

STIVELMAN, B. P.: **Conditions Commonly Mistaken for Pulmonary Tuberculosis.** *American Review of Tuberculosis*, Jan., 1921, vi, No. 11, p. 856.

The author summarizes as follows:

(1) Among the last 1700 cases sent to us suffering from tuberculosis, 176, or 10.4 per cent, were non-tuberculous.

(2) The conditions most frequently diagnosed incorrectly were: chronic bronchitis and emphysema, cardiac conditions, non-specific diseases of the upper respiratory tract, neurasthenia, chronic interstitial pneumonia, bronchiectasis, chronic non-tuberculous lung infection, asthma, gastric ulcer, pulmonary abscesses, dysthyroidism.

(3) It is hazardous to diagnose tuberculosis in individuals over fifty and those suffering from mitral disease, unless sputum or x-rays are positive.

(4) It is safe to consider lesions confined to the lower lobe as non-tuberculous until proved otherwise.

(5) Marital phthisis is exceedingly rare. Tuberculosis in one consort has no definite etiological relation to phthisis in the other.

(6) Extensive unilateral lesions are often non-tuberculous, while advanced phthisis is bilateral.

(7) Positive sputum reports are not incontestable. When the diagnosis rests on the presence of acid fast bacilli in the sputum the findings must be confirmed.

SCHMID, C. A., AND SEWALL, H.: **Pulmonary Atelectasis as a Source of Confusion in Physical Examination of the Chest.** *American Review of Tuberculosis*, Jan., 1921, iv, No. 11, p. 811.

Atelectasis is not primarily a disease though prone to accompany disease, and does not necessarily predicate a complete collapse and airless condition of the pulmonary alveoli, but includes any reduction in their volume below that normal to the phase of respiration at which their state is considered.

Clinical occurrence of atelectasis falls into two groups, the congenital and acquired. In the first, air cells of the fetal lung have not expanded after birth; in the second, lobules that once have functionated normally later lose their contained air and collapse through their intrinsic elasticity.

Two theories are advanced to explain the condition. Gairdner believes that it is due to a plug of mucus that sets as a ball-valve permitting air to escape during expiration, but preventing its return during inspiration. The second is Liehten's. He believed that collapse of the lobules inducing atelectasis, following bronchial occlusion of the bronchi, or following the opening of the pleura, are

caused by the absorption of air from the air-cells by the blood circulating in their walls.

The author brings out the fact that it is often mistaken for pleural effusion, but he shows by watching the following findings and the use of an aspirating needle that the mistake is less likely to happen. The area of flatness found in both conditions has no Ellis curve capping the area of flatness. The affected side is contracted rather than expanded. There is no bronchial breathing or voice as in cirrhosis. The aspirating needle gives a dry tap. The commonest evidence of atelectasis is found by auscultation. Auscultation reveals on deep inspiration, the opening of these cells to ventilation and the examiner hears fine crackling râles which have a considerable degree of moistures, which on continued respiratory exercise disappear; also a peculiar high pitched inspiratory murmur at the initial opening of the collapsed aircells.

The author summarizes as follows:

(1) A relative degree of atelectasis, partial collapse of the air-cells, occurs normally in any pulmonary area which is not habitually undergoing fairly vigorous ventilation; it is favored by feeble and opposed by vigorous inspiratory movements.

(2) Collapse may be determined either by compression from without or blocking of the bronchioles within the lung.

(3) Lobules of the lung which have recently become airless, may by inflation, be completely restored to their original condition; but after prolonged collapse, of indefinite period, organic changes supervene which render them incapable of expansion.

(4) Minor degrees of atelectasis may be denoted clinically by the demonstration of circumscribed areas of relative percussion dullness which quickly acquire normal resonance after deep breathing or with change of posture, or by the advent, with deepened breathing, of inspiratory râles which quickly disappear under a respiratory exercise. Collapse of an extensive volume of lung tissue is denoted by contraction of the overlying chest-wall combined with physical signs simulating those of consolidation or of an encysted pleural effusion.

(5) The physical signs of atelectasis owe their diagnostic importance to the fact that they are apt to be developed in just those conditions in which we are justified in expecting the advent organic lesions whose signs they imitate.

RIBADEAU-DUMAS, L.: **A Case of Hodgkin's Disease of Mediastinal Form.** *Bulletin et memoire de la Societe medicine des hopitaux*, 1921, 37, No. 16, pp. 711-716.

Hodgkin's disease is rather rare in France. Until the histological examination of a ganglion of the neck, the case was confused with acute tuberculosis. Later the author thought it to be a case of pleurisy. Sections were taken from the ganglions which were found in the subclavicular hollow and behind the insertions of the sterno cleidomastoids. They were movable, painful and somewhat hardened. There seemed to be typical lesions of Hodgkin's disease. The cervical ganglions appeared enlarged, more voluminous, the liver, and the spleen were swollen, the cachexia became accentuated and the patient died.

In this case, the progress of the disease might lead to confusion. The affection had begun abruptly in apparent health, with signs of pneumonia. Then after a short phase of apparent attenuation, general symptoms of a grave infection appeared. The author recommends the taking of sections from the glands of the living patient.

STEVENSON, W. H. D.: **Malignant Melanomata: Especially Those Occurring on the Heel and Sole of the Foot.** *Indian Journal Medical Research*, 1915-16, iii, 166.

Moles and pigmented warts have been usually said to be followed by malignant melanomata of the skin. These pre-existing moles are benign melanomata. Some have been reported arising from the matrix of the nails, pigmented patches near the nails or from the pigmented skin in the anus, vulva or penis.

The author cites two cases, one a melanoma of the right lower eyelid probably developed from a mole. It grew two years, and the tumor tissue was necrotic. Another case is that of melanotic carcinoma at the side of the nail of the little finger. It grew one year, and burst.

Melanomata resulting from injuries to the epithelium or in scars of wounds are rare among Europeans. The London Hospital recorded 2 cases. One was on the plantar aspect of the foot originating in a scar of a wound twenty years old; the other on the palmar aspect

of the thumb, the wound, on the scar of which it grew, having occurred ten or twelve years before (*Practitioner*, February, 1903).

Hertzler and Gibson (*Annals of Surgery*, July, 1914) record a series of 11 cases, 9 of which were on the foot. In 1 there was an ulcer due to an alveolar melanoma developed on the sole of the foot after irritation from a nail in the shoe. A note was added to the report, perhaps it is the trauma to which the sole of the foot is subjected which tends to stimulate the chromatophores to multiply. Sixteen cases in all have been reported on the foot. A nail in the shoe in one case caused an ulcer which ultimately developed into an alveolar sarcoma.

In India, no case had been reported previous to the author's. It was an alveolar melanoma, on the sole of the foot. It lasted six months. The inguinal glands of the same side were involved. It developed from an ulcer, caused by the prick of a thorn. There followed more cases. Treatment and prognosis not given.

BALLENGER, E. G., AND ELDER, O. F.: **An Important Classification of Albuminurias.** *New York Medical Journal*, May 4, 1921, cxiii. No. 13, pp. 686-687.

There are three main groups of albuminurias:

(1) Those which have no albumin and casts when the urine is kept alkaline in reaction.

(2) Those in which there is a reduction in the amount of albumin and casts.

(3) Those where there is no appreciable change in the amount of albumin and casts following the administration of alkalis.

In patients whose urine is free from pus and blood the largest number come in the first classification and the smallest in the third. For this test it is necessary to administer sufficient alkali to make the urine neutral or alkaline in reaction, about one dram of sodium citrate t. i. d. If then the albumin persists for more than one or two weeks the condition does not belong in the first classification. If there is a definite decrease in the amount of albumin and casts but some still persist, continue the treatment for a week or two longer, restricting the diet in both the variety and the amount taken; more rest is advised and greater care with the bowels. In about three or

four weeks, if the albumin and casts persist, the type belongs in Group 2 and alkali should be continued along with the other measures employed for the reason that some improvement followed its administration. Where the above plan is followed by no decrease in the albumin and casts, no benefit can be obtained from the alkalies. Those in Group 3 require the searching for focal infections, correcting the diet and gastrointestinal disturbances, detecting glandular disturbances in function, recognizing luetic nephritis, etc.

J. ROSE.

SNYDER, R. G., AND RAMIREZ, M. A.: **The Intravenous Use of Foreign Protein in the Treatment of Chronic Cases of Arthritis with Special Reference to the Use of Secondary Proteose.** *Archives of Internal Medicine*, July, 1921, xxviii, No. 1, p. 50.

Seventy cases of chronic arthritis were treated with foreign protein intravenously. They had all attained maximum improvement under routine treatment, which consisted in the removal of all apparent foci of infection, rest in bed, special diet, baking and other local application to the affected joints. Six of the patients were considered cured by the foreign protein treatment, the cure consisting in freedom from all symptoms except slight disability due to firm bands of adhesions and boney changes in the joints. The cured cases were all patients who had suffered from the disease for less than two years. Besides the cured cases, fifty per cent of the patients showed considerable improvement in motion and decrease of pain in the upper extremities and 25 per cent of them showed improvement in the lower extremities. The authors consider the treatment contraindicated in the presence of any form of tuberculosis, extreme emaciation from any cause, cardiac decompensation or excessive hypertension.

The size of the dose should not be larger than is necessary to produce a chill. If ten million typhoid bacilli (the protein originally used) produce a satisfactory reaction, there is no need to increase the dose. Once a week is often enough to give the treatment. It should be preceded by a laxative.

After using the typhoid emulsion as a foreign protein in a considerable number of these patients, the authors changed to secondary proteose, prepared from milk. The objections to vaccines, such as the

typhoid, for this purpose are; the possibility of introducing living organisms, the uncertainty of the dose due to the variability of the strength of these preparations, the inclusion of endotoxins which are not only useless but harmful, and the antigenic properties of vaccine with their possibility of inducing anaphylactic reactions. Secondary proteose is theoretically safer, as none of these objections apply to it, and the authors found it more satisfactory in practice. The patients complained of less nausea, headache and weakness following its use, and they lost less weight in the course of prolonged administration. The results were equally as good as with the typhoid vaccine. The dose used was from one half to one grain.

T. HOWARD.

LOWSLEY, O. S.: **The Role of the Prostate and Seminal Vesicles in Arthritis.** *New York Medical Journal*, May 4, 1921, cxiii, No. 13, p. 641.

A rectal examination is necessary in every case of arthritis in the male adult. Prostatic fluid should be examined in the fresh state under high power to determine the presence of pus or pathological elements. Staining masks the true conditions in some cases. In a chronic prostatitis the gonococcus is rarely met. Treatment in very acute arthritis (gonorrheal) follows:

Rest in bed.

Massive doses of gonococcus vaccine allay pain in many instances.

Heavy casts are beneficial.

The proper time to operate upon seminal vesicles is in the earliest stage.

The only types of seminal vesicles that should be operated upon are the ones distended with pus which cannot be emptied by stripping. Seminal vesiculectomy is the preferable operative procedure. This applies to acute and chronic arthritis.

After the very acute joint symptoms have subsided, the prostate and seminal vesicles should be treated until they are cured.

Autogenous vaccines, obtained from prostatic and seminal vesicle fluid, have proved to be extremely valuable adjuncts. They should be used in conjunction with routine prostatic treatment, other-

wise the prostate will remain a scarred, leathery mass, bound down by adhesions, and a constant source of irritation.

The type of treatment should be determined by the character of the case.

J. ROSE.

ZIGLER, M.: **Seminal Vesiculitis.** *New York Medical Journal*, May 4, 1921, cxiii, No. 13, pp. 666-678.

Seminal vesiculitis may be either an infectious or a noninfectious process, either at the outset or through its course. The noninfectious type may subsequently become infected, may result in just as severe pathological lesions as the infectious, and is usually due to wrong sexual hygiene. The most frequent cause of the infectious type is the gonococcus which travels at the outset from before backwards; from the urethra to the seminal vesicles; subsequently it travels from behind forward, from the seminal vesicles to the posterior urethra, establishing a vicious circle. Because of the proximity of the rectum, the colon bacillus may infect the seminal vesicles, either alone, or while the gonococcus is present, or after the gonococcus has devitalized the seminal vesicle but has itself disappeared. Tuberculous seminal vesicles are not to be stripped or operated upon. Ninety-five per cent of seminal vesicles can be successfully palpated. In the sclerous tumefied seminal vesiculitis, all the urine, either before or after the stripping, may be clear and show no detritus, because drainage is imperfect and also because the rectum and a thick band of connective tissue is interposed between the finger and the seminal vesicles proper.

J. ROSE.

OPHUELS, W.: **Relationship Between Trauma and Malignant Disease from an Industrial Viewpoint.** *California State Journal of Medicine*, 1921, xix, No. 2, p. 54.

Samuel Gross, in 1897, made the statement that among 144 cases of sarcoma of the long bones, one-half were due to traumatism, blows, falls, kicks, sprains, fractures and other injuries. Mary, Loeventhal,

Coley, Roepke, etc., have reported the same. Benign tumors produced by trauma are fibroma, lipoma, neuroma, osteoma, and enchondroma. Many of the so-called osteomata are not true tumors, but hyperplastic processes associated with bone development following injury to the periosteum and the adjoining soft parts. Sarcomata are supposed to be due most commonly to a single trauma, carcinoma oftener to a repeated trauma. Among all sarcomata those of the bones are most frequently referred to trauma, especially a fracture, when a remarkable, vigorous production of new tissue follows. In callous production it is often hard to decide, even microscopically, whether one has to deal with normal regenerative processes or tumor.

STEWART, G. D.: **The Reflex Stomach from the Surgeon's Point of View.** *Medical Record*, N. Y., 1921, 99-886.

The stomach is the spokesman of a good many organs, and its language is either motor or secretory. Crile has recently made the statement that stomach chemistry was not much good from a diagnostic standpoint, and the author was glad to give it up. The motility of the stomach is more important than the chemistry, because while gastric response by secretion is very interesting, it does not tell where the stimulus comes from. The central nervous system had to do with the response, and while duodenal ulcer will make itself quickly felt by pain, ileocolic disturbance has to make trouble a long time before it is heard. To understand reflex paths of the stomach one must understand the nerve supply by the autonomic or vegetative nervous system which controls smooth muscle in general: digestion, heart, lungs. This system comprises the sympathetic and the parasympathetic. Briefly, one can say the vagus controls the alimentary tract from the fauces to the rectum then the cord takes control of the sphincter; but, going down the tract, the nervous control becomes less important and the chemical action more important. The reflexes are so complicated and so interlaced in action that they may be produced at any level; they may be visceromotor, viscerotrophic or visceroviscero. There are many conditions causing the stomach reflex, outside of the canal, such as diseases of the generative organs in the female, mobility of the kidney, disease of the central nervous system, toxemias, tuberculosis, syphilis, cardiovascular-renal

disease; and in the canal, there may be duodenal ulcer, cholecystitis, Medsel's diverticulum, chronic ileocecal conditions, gall-bladder disease, appendicular lesions. Thus hypermotility was associated with gall-stones in 68 per cent of the cases; with duodenal ulcer in 75 per cent; with chronic appendicitis in 55 per cent. Dr. Babcock has suggested that there is a block system, and one can find traces of this at seven sphincteral points, regulating the traffic; such were the pharyngeal, esophageal, pyloric, duodenojejunal, ileocecal, transverse colonic, and rectocolonic. There may be centers for each one of the sphincteric points. Study of the cases diagnosed at Bellevue Hospital, with gastric symptoms, showed that all such cases gave clearly diagnostic histories which should classify the case, so that while one should bear in mind the reflexes, one should not be confused by them. The term "reflex stomach" should be abolished from the literature, often being an excuse for laziness and inefficiency.

HAMILTON, A.: A Discussion of the Etiology of So-called Anilin Tumors of the Bladder. *Journal of Industrial Hygiene*, 1921, iii, 16.

In 1895 Rehn called attention to the frequency of malignant bladder tumor in employees of anilin factories, especially in the department where fuchsin was made. It was the gases which he held responsible for the disturbances of the urinary system. In the manufacture a mixture of anilin, ortho-toluidin and paratoluidin, with nitrobenzene, or orthonitrotoluene and para-nitrotoluene, in the presence of iron, and hydrochloric acid the mixture is heated. The exposure in all cases had been long in the fuchsin and in the benzidin naphthionic department. The shortest exposure on record so far was found in the statistics of Hoechst, Ludwigshafen, of a man exposed two years only in the benzidin department. Oppenheimer observed six men who had worked in the same room for 20 years, two were healthy, two had been operated for bladder tumor and had recovered, and two had died from bladder tumor. Leuenberger, Schwerin and Oppenheimer found that the tumor may develop long after the exposure. The authoress carried on minute studies as to which chemical in particular was most toxic, or caused the tumor growth. The theory of high dilutions of anilin vapors or benzidin dust as a cause is not supported. No aromatic compound has so far

been indisputably proven as a cause even of cystitis which precedes tumor formation. Arsenical cancer and anilin tumors have a great deal of resemblance; also those cancers caused by long continued internal administration of small quantities of arsenic as medicine or in drinking water, or by arsenic in soot and pitch or by arsenic cobalt ores. In these growths, as in anilin tumors of the bladder there is a precancerous stage of irritation of epithelial cell proliferation. Tumor formation then follows a slow carcinomatous degeneration. The anilin cancer occurs at an earlier age than other cancers. Arsenic absorbed from the fumes produced by reduction of N No. 2 is excreted by the kidney and has been recovered from the urine. Arsenic is known to be capable of exciting epithelial proliferation in other parts of the body, and it seems possible that the same effect may be produced when it acts on the mucosa of the bladder.

"The substances, with the exception of beta naphthylamin, which have been connected with tumor formation, are all reduction (NH_2) compounds, formed by reactions in which the accidental production of fumes of hydrogen arsenide is an ever-present possibility, and the processes in which this danger is greatest are those noted as responsible for large numbers of tumor cases. Even in the best constructed parts minute quantities of the gas may escape, especially in the course of filtration or of cleaning or flushing out the apparatus.

McCONNELL, W. J.: **Industrial Dermatitis Among Printers.** *Public Health Report*, 1921, xxxvi, No. 18, p. 979.

Dermatitis from "ink poisoning" had often been reported by printers, and has been found by doctors on the parts of the body coming in constant contact with the ink. The adulterants of pure oil of turpentine have, in other countries, been made responsible for them, and as a result the U. S. Public Health Service investigated the cause of this skin disease. Men volunteered to experiment in applying inks of various colors. The cleaning materials were investigated. In this country neither oil of turpentine nor a substitute is used; still similar lesions appear on the hands and arms of the pressmen. Erythema and ulcerations, occasionally extending above the elbow appear. Some are scaly and dry, others moist and vesicular. Some coalesce and spread, others are discrete. The patients report

erythema following a vesicular eruption; itching and burning may occur. The conditions vary widely in the different individuals. It was found that height, weight proportion, personal cleanliness, means of cleaning or even the inks were not the real cause, but those persons afflicted with dermatosis all had a dry skin, without natural oiliness. Those with oily skins had no eruptions.

The method of cleaning the skin is usually brutal. The hands are usually first washed in mineral oil, sometimes they are immersed in it. Then soap and hot water and pumice soap, or fine sand mixed with soap, are used. A stiff brush and salts of tartar (potassium carbonate) are also employed. Few of the printers use emollients after washing. The black ink was easier to remove than green and brown inks. Those who volunteered for experiment found that they could clean their hands as effectively with a rough wash cloth and soap and water as they could with a brush. Where the abraded skin was thoroughly dried with alcohol before putting on the ink, it was harder to remove. The men were advised to use lanolin before starting work and to wash with a mixture of sawdust, green soap and warm water after work. The men suffering from severe skin lesions were given a compound in solid block form of Zinc ore (calamine and a silicate of zinc), pulverized and passed through a 100-mesh sieve, 3 parts gelatin, 4 parts glycerin, 5 parts water. The calamine paint they were directed to melt in a double saucepan, adding hot water if found too stiff. It must be left on until it dries and peels off. On the unbroken skin no irritation or dermatosis was caused. The dermatosis apparently depends upon the dryness of the skin, the amount of linseed oil in the ink and the method of removing it. In the use of black ink containing most oil the trouble is further delayed. It seems that the drier in the inks has a tendency to extract the oil from the skin of some individuals. Those who do not wear gloves when cleaning the plates with benzol acquire dryness of the skin more readily.

EDITORIAL: The Diagnosis and Prognosis of Mushroom Poisoning.
Medical Record, January 8, 1921, xcix, No. 2, p. 61.

Poisoning from so-called suspicious mushrooms is generally excellent as far as life is concerned. Muscarine poisoning is usually

serious but not fatal. People with cardiac, renal or hepatic lesions, children and older individuals only have been known to die. It is often mistaken for mere indigestion, cholera, typhoid fever, occasionally for delirium tremens, or acute suprarenalitis.

Exact diagnosing sets in with the known fact of mushrooms having been taken. Stools and stomach contents may harbor mushroom particles or their spores. Blood examination will be of great diagnostic aid. Sometimes every person who has partaken of the dish will be ill; at others some may remain exempt, not every mushroom in the dish having been poisonous.

Phallin poisoning is much more serious, and its tardy vomiting, diarrhea, anemia, pulmonary, gastric and intestinal hemorrhages, stupor, somnolence, vomiting, and watery stools, are extremely dangerous. The mortality amounts to about 80 per cent.

FORBES, H. S.: **A Survey of Carbon Monoxid Poisoning in American Steel Works, Metal Mines, and Coal Mines.** *Journal of Industrial Hygiene*, 1921, iii, No. 1, p. ii.

The clinical effects of carbon monoxid have been studied in metal mines and about blast furnaces, producer gas boilers and engine rooms in Montana, Colorado, Oklahoma, Arkansas, Alabama, Tennessee, Kentucky and Pennsylvania. Information was sought and found in mine hospitals and from mine doctors, etc.

In literature many instances of mental impairment, psychoses, and paralyses, are reported to have followed acute gassing by carbon monoxid, and anemia, neuritis and other symptoms follow chronic poisoning from gas. It undoubtedly caused more accidents than any other gas in industry.

Exposure to carbon monoxid usually occurs after explosions or during serious fires, about smouldering fire areas or after blasting. The gas is the chief poisonous element of the miner's "white damp", "after damp" and "powder smoke"; 0.025 per cent causes dizziness and headache; 0.2 per cent are dangerous. The smelters in the copper mines do not seem to present danger under ordinary conditions. Around the fire areas the small amounts of this gas are rather troublesome. Headaches after blasting where the air current is insufficient are common. In the coal mines, especially of the South,

the powder smoke, only occasionally causes symptoms, as the ventilation is good. In the iron ore mines, which are not as well ventilated, the "muckers" often have a headache. Tenders of boilers, engines, etc., who are exposed most of the time do not often stop work from gas poisoning, but with pipe-fitters and repair men it is quite common. The gassed men usually lie down a few minutes, and return to work, only a few being sent to the hospital.

The symptoms caused by acute carbon monoxid poisoning vary from sudden unconsciousness to merely a slight headache. First occurs dizziness, then a sense of fullness in the head, frontal headache, weakness of the knees, nausea, sometimes vomiting, inability to walk or stand and unconsciousness. The severity depends upon the concentration duration of exposure and the physical condition of the workman at the time of gassing. Some get into a state similar to intoxication. The sensibility is especially great in men with pre-existing pulmonary or cardiac disease. Sudden chilling or exertion cause an exacerbation of symptoms. Gastric indigestion or constipation makes a man temporarily more susceptible to carbon monoxid. In severe acute gassing when unconsciousness has lasted minutes or hours the after-effects of headache, fatigue and muscle pains may last from one to three days. The pains are most intense in the muscles used almost at the time of gassing. On inquiry the miners knew of men permanently incapacitated through mental or physical injury from gassing. A Bureau of Mines official, however, knew of two men gassed after a coal mine dust explosion, who were mentally incapacitated some months later; another Bureau knew of two men who had been partly paralyzed after short exposure. The history given suggested complicating disease or hysteria. Cases of pneumonia following gassing were rare, and usually occurred where smoke and irritating gases were present.

About blast furnaces the testimony was the same, almost no late nervous or mental sequelæ being known. In two cases, one a chronic alcoholic with positive Wassermann, mental impairment was noticed. Arteriosclerosis plays a great part in cerebral lesions from gassing. Young healthy adults, severely gassed by "white damp", die in a few days or recover entirely. A certain tolerance is developed and men exposed for months to "white damps" may at first suffer from headache, but will at last stand heavy doses. Most miners notice no cumulative ill-effects. Anemia was found neither in the reports of

the doctor's nor in the red blood cell counts. Polycythemia, and not anemia, is the rule. Miners and doctors could give no histories suggesting multiple neuritis, mental deficiency or paralysis following chronic carbon monoxid exposure. Even 134 cases of acute exposure to illuminating gas, which is more toxic, were not readmitted to the hospital for neurological symptoms or sent to an insane hospital, unless a pathological condition existed prior to gassing. Carbon monoxid forms no permanent combination with neuroglobin. As soon as the man breathes oxygen or fresh air the oxygen replaces the carbon monoxid in the blood, molecule for molecule, at a speed depending upon the partial pressure of the two gases in the alveoli. The red blood corpuscles transport oxygen normally as soon as the carbon dioxid has been expelled. Bleeding is harmful, transfusing superfluous. Henderson's method (*Jour. Pharmacol. and Exper. Therap.*, 1920, xvi, 11) gives striking results. He gives with oxygen a small percentage of carbon dioxid, to induce better pulmonary ventilation.

MOSHER, E. M.: **The Mobile V-Colon, Its Causes, Effects and Correction.** *New York Medical Journal*, May 18, 1921, cxiii, No. 14, pp. 741-744.

A more or less acute angle is liable to form in any part of the transverse colon where there is localized weakness of the abdominal wall. Because this bend resembles the letter V it has been termed the V-colon. In moderate degree this bend is of common occurrence—in extreme degree, occasional. It slowly undermines the health by causing stasis in the bend and in the section of colon behind it. Recognition is easy by auscultatory percussion, but more difficult with bismuth enema, because of the tendency of the latter to straighten the bend mechanically as it fills the transverse colon. Temporary correction by slow sighing respiration, elevation of legs, and other measures can be quickly accomplished. Permanent correction can be made by applying a simple supporting belt, and by the faithful and persistent use of exercises calculated to draw the recti muscles together and to strengthen the entire musculature of the abdominal wall, as follows:

(1) Replacement of viscera by long sighing expirations following moderate inspirations.

(2) Frequent and forceful voluntary contraction of the abdominal muscles without the aid of respiration.

(3) Slow elevation of the closely approximated legs to a right angle with the trunk (body recumbent).

(4) Slowly repeated sidewise see-saw movements of the head and shoulders (body recumbent). The latter movements may also be taken sitting or standing.

J. ROSE.

PETERSON, W. F.: **The Focal Reaction.** *American Review of Tuberculosis*, May, 1921, v, 1921, No. 3, p. 218.

In view of the demonstrated fact that tuberculous foci may react to nonspecific stimuli and conversely that nontuberculous foci may react to tuberculin, the fallacy of the purely specific concept of the focal reaction is discussed. Focal reactions can be classified according to the Schmidt scheme as those that occur (1) about inflammatory foci of infectious origin, (2) about localized foci endogenous or traumatic in origin and (3) on the basis of diathesis. Such reactions take place not only after specific stimulation, but after a wide variety of biological alterations in the organism. This widened concept of the focal reaction would seem to clear up a number of common clinical observations, such as the flaring up of gall-bladders, appendiceal, arthritic or other localized inflammatory foci after remote trauma, vaccination, gastro-intestinal disturbance, x-ray exposure, fatigue, chilling, etc.

The focal reaction, no matter how elicited, is essentially a diphasic phenomenon, consisting in an augmentation of inflammation, followed by a diminution, and tendency to complete restoration to normal. In a general way it may be stated that the second phase (positive or healing) is closely related to the intensity of the first (or negative) phase, that is, the more intense the inflammatory reaction, the greater the tendency to a complete restoration to normal. In this phenomenon lies the therapeutic usefulness of the focal reaction.

In the mechanism of the reaction two general factors have heretofore been largely ignored. These include the effects of the (1) so-called Plasmaaktivierung (Weichardt) and omnicellular stimulation by means of proteins, protein split products, and a large number of

other substances, and (2) the alteration in the permeability of cellular membranes (with vascular, nervous, glandular and other effects).

In the mechanism of the focal reaction in tuberculosis at least three factors are involved: (1) a true and strictly specific sensitization of the organism, (2) general hypersensitiveness of the organism against proteins, and (3) a nonspecific reaction about the tubercle. This latter is, of course, greatly modified by the anatomical peculiarities of the tubercle (avascularity, encapsulatism, accumulation of necrotic material, resistance of the tubercle bacilli, etc.) Schmidt's deduction that focal activation in tuberculosis may be beneficial, while theoretically defensible, is clinically unwarranted because the reactions are beyond our control and the digestive processes incident to the reaction may destroy protective connective tissue and result in the dissemination of the disease.

In the therapeutic application of the focal reaction in non tuberculous disease, attention is directed to the fact that favorable results have been reported from combined nonspecific stimulation and the use of actiotropic agents. Thus milk and mercury (in syphilis), tuberculin and mercury (in general paresis), milk injections and salicylates (in arthritis), milk injections and luminal (in epilepsy), salvarsan and tuberculin (in lupus) have been reported in this connection.

C. A. SCHMID.

KERRISON, P. D.: **Otitis Media.** *Diseases of the Ear*, Philadelphia and London, 1921, Second Edition, p. 205.

The treatment of chronic purulent otitis media consists mainly of treatment of the various morbid changes present, and there is no disease in which the physical changes vary too widely. Polyp, if present, must be removed, either through the canal or by a radical operation; ossicles, if diseased to a certain extent, must be removed; cholesteatoma must be dealt with radically. In some cases the ear should be irrigated; in others irrigation is contraindicated. No routine method of treatment can be described. It is therefore necessary to classify the cases.

A. The simplest form of the disease, where it has not existed for

over two years, with, for example, perforation of small or medium size which refuses to heal, and a discharge persistent but moderate in amount and free from the offensive odor characteristic of bone necrosis; such a condition has passed the state where spontaneous recovery is probable. The chief obstacle to local recovery lies in various conditions.

(1) The danger to reinfection from the nasopharynx due to the perforation of the drum membrane carries a constant stream of air-filled impurities through the tympanum.

(2) The epidermal covering of the drum membrane may have extended over the perforation so that its closure by cicatricial tissue is impossible.

(3) The lower part of the tympanic cavity may contain residual pus which the perforation cannot drain. Routine irrigation in such cases is valueless and frequently injurious. The canal should be wiped free of pus; the nose and nasopharynx should be sprayed with a mild, cleansing solution, the ear inflated per catheter and the drum reinspected. If pus has been drawn out into the canal, the canal and membrane are again wiped out with alcohol and then the canal is lightly packed with a sterile gauze wick. The treatment is repeated for several days. Where no tendency is seen for the perforation to close, the edges should be cauterized with some such agent as trichloroacetic acid. This treatment usually cures the difficulty.

B. Large Central Perforations without Polypi or Excessive Production of Granulation Tissue.—Frequent irrigations are not beneficial. After mopping out the pus, the canal should be filled with hydrogen peroxid, and permitted to remain for 5 minutes. The ear should be syringed with a warm solution of boracic acid, and then the canal filled for a few minutes with 95 per cent alcohol. This leaves the canal comparatively dry. The canal should be dusted with boric-acid powder by a powder blower and lightly filled with sterile gauze. The treatment should be repeated regularly and the discharge is thus greatly reduced.

C. Aural Polypi and Granulations.—After polypi have been removed, careful cleansing treatments with astringents will produce healthier conditions. In this case the boric acid powder is applied, with a spatula, not by a powder-blower. The wick is packed firmly in the tympanic cavity and loosely in the meatus. This author does not consider that the use of the powder will abstract the flow of pus.

He considers that its use is cleansing, deodorizing and in many cases causes shrinkage of granulations. It is both disinfectant and astringent. Where the probe does not find sound tissue beneath granulations, but passes through to bare necrotic bone, a radical operation is indicated.

D. *Marginal Perforations*.—The treatment varies in accordance with the following conditions. (1) The presence of bare necrotic bone, (2) evidence of pus retention in the vault, (3) necrosis of head of malleus and body of incus, (4) recurring polypi or exuberant granulations in the aditus and vault. For the first, careful and prolonged cleansing treatment is advised before a radical operation; for the second the safest method is the radical operation; the third and fourth are somewhat kindred conditions and the author considers it is generally best to proceed at once to the radical operation, the technic of which is described in detail.

E. *Perforation of Shrapnell's Membrane*.—Where the discharge is slight, the inclination is to confine the treatment to occasional irrigating by the physician. Where the discharge is profuse, the author considers a radical operation is not indicated, but a simple mastoidectomy which does not endanger the hearing power. If this is not successful, the radical operation will have to be performed later. Cholesteatoma—where its presence is determined—requires the radical operation.

The indications for radical operations in general are discussed at greater length. No patient should be subjected to one until the labyrinth has been tested for evidence of suppurative labyrinthitis. Unless the labyrinth is opened and drained, the patient's life is placed in great danger.

Ossiculectomy is a substitute for the radical operation. The author feels the radical operation is of more value except in selected cases.

In chronic middle-ear catarrh, (a) chronic hypertrophic otitis media, and (b) chronic hyperplastic otitis media are two conditions and treatments which are discussed at length. With all forms of tympanic disease, the eustachian tube should receive attention. Where it is narrowed, some form of dilatation is necessary, and the nose should be sprayed with cleansing solution and a 4 per cent solution

of cocain applied to the pharyngeal end of the tube before a bougie is introduced. Catheter inflation and auditory massage are sometimes employed.

The complication of otosclerosis complicated by chronic catarrhal otitis media is one which rarely responds to any form of treatment. Although local treatment is useless, a hygienic mode of life is beneficial in deferring deafness.

BARBER, H. W.: Two Cases of Psoriasis Treated by Danysz's Method.

Proceedings of the Royal Society of Medicine, 24-26; section on Dermatology, 1921.

The author believes that an experience of five years is necessary before a definite opinion can be formed concerning the value of a new treatment for psoriasis. A study of Danysz's book, "*Origine, Evolution et Traitement des Maladies chroniques non-contagieuses*", has led the author to try Danysz's treatment in some of his cases. Danysz regards psoriasis, certain forms of eczema, urticaria, angio-neurotic edema, and other non-cutaneous diseases, such as asthma, chronic albuminuria, and many gastro-intestinal disorders, as due to a state of "immunity-anaphylaxis." There is some experimental work in support of this view, for if rabbits are injected repeatedly with minute doses of a foreign serum or bacterial protein for several weeks, and are then kept under observation, they gradually develop chronic diseases of various kinds, such as arthritis, dermatoses with alopecia, paralysis and so on. Acting on this theory Danysz attempts to counteract the anaphylactic state by giving repeated doses at short intervals of bacterial protein prepared from fecal cultures; the bacteria being killed at 70° C. (158° F.), the preparations are less toxic than ordinary vaccines, and can be injected daily or every other day. The method is comparable with the injection of peptone, of non-specific protein such as milk, and of food, animal or plant proteins in the treatment of asthma. In the discussion Dr. Dore said he had a series of psoriasis cases under stock vaccine treatment, but it was too early to report on them. Sir James Galloway had showed a case of psoriasis temporarily cured by staphylococcus vaccine which had been cultivated from the patient's own scales. A year later the eruption recurred and this time could not be benefited

by staphylococci inoculations. It was known that psoriasis was not due to staphylococci invasion of the surface, so that in this case the staphylococcus must have been an accidental incursion.

SMALL, W. D. D.: **Cases Illustrating the Influence of Trauma on the Distribution of Psoriasis.** *Edinburg Medical Journal*, 1921, xxvi, 51-53.

It has been frequently observed that cutaneous trauma plays some part in the distribution of psoriasis. Thus in a psoriatic subject, it is common to find that a lesion of the disease makes its appearance along the line of a scratch, at the site of a tattoo mark, or in the neighborhood of a vaccination or operation scar. As a rule, the psoriasis is at the time in a state of more or less active eruption, but cases occasionally occur in which during the stage of quiescence some injury appears to the patient to be responsible for inducing a fresh outbreak. This influence of trauma on the distribution of psoriasis was seen in an exaggerated degree under war conditions amongst troops of the B. E. F. in France. There were two distinct groups of cases, those in which the disease first made its appearance in the neighborhood of a gunshot or other wound, and was followed sometime later by a more or less general outbreak of the eruption; those in which the psoriasis became superimposed upon some other cutaneous malady from which the patient was suffering. In these cases the psoriasis adopted the distribution of its predecessor, all or most of whose manifestations became psoriatic. Thus we might see the disease occurring in the situation usually affected by scabies, when it would be most marked between the fingers, on the fronts of the wrists, and on the penis. Similarly in cases of impetiginous or other eruptions, the site of the psoriasis was determined by that of the original disease. The size and general outline of each area of psoriasis also corresponded exactly with those of the antecedent lesions. Both the above classes of cases were distinctly rare, but the instances met with usually presented features of a very striking nature. Two cases are reported—one showing psoriasis in relation to wounds and the other with scabies, complicated by marked secondary pyoderma. The diseases which were observed as determining in this way the distribution of psoriasis were scabies, seborrhea, and various forms of im-

petigo. The similarity of distribution of the lesions in certain cases of seborrhea and of psoriasis has been put forward as one argument in support of the view that the two conditions are in reality varieties of the same pathological entity. This apparent resemblance, however, is readily explicable in the light of the type of case recorded above—psoriasis in a seborrheic subject being likely to have its distribution influenced by the preëxisting seborrhea. The little that is definitely known regarding the etiology of psoriasis seems to indicate that it is systemic rather than local in origin. It appears however, that local injury of the skin plays a more important part in many cases in determining the distribution of the eruption than has hitherto been generally conceded. Possibly the almost constant occurrence of the disease upon the knees and elbows may be attributable to the greater degree of friction to which these parts are subject.

FREEMAN, E. B.: *Spasmodic Stenosis of the Esophagus. Minnesota Medicine*, 1921, iv, 390-399.

The factor of spasm enters into nearly every condition of the esophagus, when foreign bodies are present and also in many of the organic diseases. Clinically we may classify spasmodic stenosis into spasms of the upper and of the lower end of the esophagus. A spasm of the middle third is rarely seen and then it is associated with some organic disease. Sometimes both high and low spasms are present at the same time. Chronic spasm occurs only at the upper or lower end of the esophagus. At the upper end, the inferior constrictor of the pharynx spreads out on the lateral and anterior surfaces of the esophagus. At the lower end, the esophagus passes through the diaphragm, surrounded on either side by the cruri which are believed by Leibult and Rouget to give off fibers which surround and interlace with those of the esophagus. If spasm is due entirely to the contraction of the esophagealmusculature one would think that chronic spasm would occur at any point along the esophagus. This has not been true. The spasm occurring at the upper end of the esophagus is, in fact, a spasm of the inferior constrictor of the pharynx; the spasm at the lower end is primarily a spasm of the hiatal esophagus; abdominal and cardiac esophagisms occur only in association with hiatal esophagisms.

Many patients state that the first abnormal sensation referred to the region of the esophagus, occurred while hurriedly taking food. Severe spasm of the esophagus may occur associated with superficial lesions of the mucous membrane. Jackson states that this is probably due to the fact that the esophageal pain-sense is less efficient than the esophageal tactile sense. However, it is well established that the esophagus is quite insensitive below the cricoid level. Foreign bodies lodged in the esophagus and non-malignant organic strictures are patent factors in producing spasmodic stenosis. Spasm in any marked degree is not associated with carcinoma. Diseases of the abdominal viscera may give rise to spasmodic stenosis of the esophagus without any local cause being found in the esophagus itself. The reflex stimulus may arise from the stomach, duodenum, gall-bladder, appendix or other abdominal viscera. In other cases the exciting factor may be found in some form of focal infection, such as infected teeth, tonsils or sinuses. Still in other cases the initial spasm would appear to be due to some emotional or psychic condition. In the normal individual there is a hesitation in the swallowing act when the food reaches the hiatal esophagus. In spasmodic disease of the lower end of esophagus, this is prolonged. Thus, primarily the spasm may be considered a pathological prolongation of a normal reflex.

In the beginning of the disease, the symptoms are usually intermittent. They may be mild or very severe. In spasm of the upper end of the esophagus the most characteristic symptom is difficulty in swallowing. In mild spasms of the lower end of the esophagus there occurs muscular hypertrophy of the esophageal wall, which is later followed by atony and dilatation. If the spasm is severe there is little hypertrophy but rapid dilatation. There is seldom severe pain but the patients complain of a fullness or pressure beneath the lower end of the sternum. This sensation of fullness increases in *pari passu* with the dilatation of the esophagus. Salivation is a frequent symptom. It is uncommon for the food to be returned quite involuntarily but this may occur if a large quantity has been retained in a greatly dilated esophagus sufficiently long for a certain amount of bacterial decomposition to occur. The vomiting or regurgitation in these cases is very characteristic. It is usually sudden, without nausea, propulsive in character and frequently occurs during the meal or just after the patient has finished taking

food. Semi-solid foods are usually less difficult to swallow than either liquids or solids. All are retained better if swallowed extremely slowly. The general health is at first not impaired. This is in complete contrast to malignant disease of the esophagus and in spite of the fact that these patients may lose considerable weight. The clinical history aids materially in the diagnosis, but a positive diagnosis can only be made by an endoscopic study. The following methods of examination are helpful in all cases; first, the sounding of the esophagus with an ordinary stomach tube or an olive bougie; second, an x-ray study; third, an endoscopic examination. If, after failing to pass a stomach tube, one passes a large olive bougie using a silk thread as a guide, it should suggest at once that the lesion is a spasmodic and not an organic stenosis. In sounding the esophagus in spasmodic stenosis of the lower end, one is impressed with the wide variation in the amount of resistance encountered but at all times some resistance is apparent. The roentgen examination in spasmodic stenosis usually establishes the diagnosis. However, in early cases an endoscopic examination should be made during an attack. The esophagus should be thoroughly washed out before the barium mixture is given. One should make both a fluoroscopic and radiographic study with the patient in the anterior, posterior and oblique positions. In the typical case one finds a blunt or conical obstruction at the hiatus esophagi with a secondary dilatation of the esophagus. In long-standing cases that may be an "S-shaped esophagus". Two conditions confuse the diagnosis, carcinoma and cicatricial stenosis. Both, as a rule, cause irregularity in outline. However, regular contour is sometimes found in carcinoma and irregularities sometimes occur in spasm. An endoscopic study permits direct inspection of the spasmodic closure and of the mucosal surface for evidence of organic disease. The most important endoscopic finding is that when slight pressure is made with the esophagoscope, the spasm relaxes and there is no further difficulty. In cases of spasmodic stenosis occurring at the lower end of the esophagus no difficulty is experienced in introducing the esophagoscope until it reaches the hilatus esophagi. There it meets definite resistance, but with gentle pressure the spasm relaxes and the esophagoscope passes into the stomach. Early in the disease the endoscopic appearance of the esophagus may not differ from normal. Late in the disease the esophagus is very much dilated, the walls are atonic, the mucosal

folds obliterated, the respiratory movements absent, the mucous membrane is of grayish color, showing evidence of chronic inflammation and, in many cases superficial ulcerations. The treatment is determined by several factors, namely; the location of the spasm, the stage of the disease and the appearance of the esophagus on examination. In the cases that come under observation early in the disease one may expect good results from treatment; others are not so satisfactory. The exciting cause should be removed. Frequently the patients are undernourished. If possible, the esophagus should be lavaged at night in all cases in which food and secretion are found to be present continuously. The patients should eat food of high caloric value, no highly seasoned, coarse or irritating food. Medicinal treatment while limited to a few days, is helpful in many cases. Belladonna, given in increasing dosage until one reaches the physiologic tolerance of the drug, is valuable in most of the early cases and in some of the late ones. Bromids are useful in the definitely neurotic patient. Mineral oil, by protecting the mucosa, allays irritation and is especially useful when the spasm is associated with a local lesion of the mucosa. When the spasm is well-established or is associated with marked dilation of the esophagus some form of mechanical stretching of the spasmodic stenosis of the upper end is usually relieved by the introduction of the large-sized esophagoscope. In the severe cases from four to six treatments may be needed. In spasmodic disease of the lower end divulsion with a specially constructed steel divulsor or with a hydrostatic or pneumatic bag is frequently employed. The author dilates the spasm under fluoroscopic control, using the Plummer instrument but substituting air inflation for water distention. A thick, barium paste is applied to the outer surface of the bag making it more clearly visible. The method of treatment is as follows: the instrument is introduced by using a silk thread as a guide. The patient is placed before the fluoroscope and the exact placing of the bag done under fluoroscopic control. Inflation is begun. The manner and rapidity with which dilatation occurs is carefully noted. At short intervals a reading of the manometer is taken. The degree of dilatation is also carefully noticed and usually not continued beyond 4 or 5 centimeters. If pain occurs, pressure is promptly released. At each treatment the distended bag is left in position from five to ten minutes. The relief from symptoms usually occurred promptly. In discussion Dr. Vinson of Rochester claims that the

disease is frequently seen in persons not at all neurotic and that roentgenography does not differentiate this disease from carcinoma.

NILES, G. M.: **Vomiting.** *American Physician*, June, 1921, p. 455.

In certain esophageal abnormalities food may be swallowed, and, after a time, be returned in a manner resembling true vomiting. In malignant disease of the esophagus, in fibrous stricture, cardiospasm, pressure from without the esophagus, as an aneurysm or some neoplasm, in idiopathic dilatation of the esophagus or in the pressure of diverticular, food may be returned through the mouth, either promptly or after many hours. If the obstruction has been of long standing or near the cardiac opening of the stomach, the ejection of the food may be delayed considerably. Sometimes there is an incomplete obstruction of the cardia, whereby a part of the ingested food reaches the stomach, but with difficulty and the esophagus becomes dilated above. Roentgen ray will be able to diagnose them. The returned matter is undigested, it is not acid, and may contain mucus or blood, or even portions of growths.

"Rumination" may occur, and part of the stomach contents brought into the mouth, and then be swallowed. In bulbar and diphtheritic paralysis unswallowed food may be ejected. In normal children, overflow may occur.

In vomiting the muscular coats of the stomach are involved, the sphincter at the cardiac orifice, the diaphragm, the abdominal muscles and the vomiting center in the medulla. The efferent nerve fibers of the vagus supplying the musculature of the stomach convey the vomiting impulse. In this function, furthermore, the phrenics to the diaphragm, and the spinal nerves supplying the abdominal muscles are concerned. The walls of the stomach contract, the diaphragm is pushed violently downward, while forcible contraction of the abdominal muscles occurs. While the cardiac sphincter is usually relaxed the pyloric sphincter is closed. If the latter is relaxed, bile and intestinal contents may be contained in the vomited matter.

In retching the sphincter does not relax, in pyrosis the cardiac sphincter relaxes, but there is no violent muscular action. The fundamental causes of vomiting are those acting on the vomiting center and those acting reflexly. The latter is the most frequent. It is

prevalent in most pathological states of the stomach, some visceral diseases, and disturbances of special senses.

The principal central causes are drugs, apomorphin or anesthetics, uremia, diabetes, acute yellow atrophy of the liver, Addison's disease, onset of acute infections, especially in children, pregnancy and cyclic vomiting.

In pregnancy vomiting may be partly reflex and partly toxic. Persistent vomiting, should lead to suspicion of yellow atrophy where jaundice is present: Addison's disease, where extreme weakness, pigmentation of the skin, and low blood-pressure are present. Cyclic vomiting in the young is usually a sign of acidosis. Vomiting, which ushers in the specific fevers in children, must be considered as the action of a specific toxin on the cerebral center.

The reflex causes are: irritating articles of food, emetics, poisons, acute, chronic, or phlegmonous gastritis, dilatation and hour-glass contraction of the stomach, pyloric obstruction due to malignancy, stricture, hypertrophic stenosis in infants or pressure on the pylorus from without. In portal obstruction or cirrhosis of the liver, vomiting may arise from venous congestion. It is also a rather common symptom in gastric mucosa. Further causes are intestinal obstruction, appendicitis, intestinal worms, enemas, peritonitis, biliary colic, renal colic, Dietl's crises, acute pancreatitis. There may be vomiting in pulmonary tuberculosis, due to irritation of the bronchi and fauces, or in pertussis.

A blow on the epigastrium and testis, or a kick on the semilunar cartilage of the knee may cause vomiting. Pregnancy causes reflex vomiting. Insults to the esthetic senses, smells, tastes, sights, or recital of revolting circumstances may cause it. Concussion of the brain, cerebral tumor or abscess, meningitis, hydrocephalus, cerebral sinuses, tabes dorsalis and spinal-cord brings it about. Middle ear trouble has been reported to cause it, so is migraine and epilepsy. There is also seasickness, and "hysterical" vomiting.

SYMMERS, D.: **Leukanemia.** *Journal of the American Medical Association*, Jan. 15, 1921, lxxvi, No. 3, p. 156.

The number of leukocytes in the blood varies from hypoleukoeytosis to hyperleukoeytosis. In some cases the white cells remain

below, at or slightly above the normal average; in others the number is high from the beginning. Some cases show an abrupt increase in the last few hours of life.

In former years the large mononuclear nongranular white cells, which were abundantly found in the circulation, bone marrow, spleen, liver and lymph-nodes were in the center of morphologic interest. Treadgold suggested that they were myeloblasts. Meyer next found typical cases of leukanemia in which large mononuclear monogranular cells in the spleen, and lymph-nodes existed. They morphologically resembled myeloblasts and gave a positive oxydase reaction. This test was the first scientific step.

The author in one of his cases of leukanemia found that the preponderating white cell yielded a positive oxydase reaction. This and the morphologic character confirmed Meyer's contention that this organism is a myeloblast.

Hematologists believe myeloblasts to be capable of differentiation into nucleated red cells or into granular leukocytes, eosinophilic and neutrophilic myelocytes, polymorphonuclear neutrophils, and eosinophils.

The provocative agent in leukanemia seems to strike the bone marrow with such force as to bring about almost instantaneous demobilization of its hematogenic centers, causing vast numbers of erythroblastic and leukocytic embryonal cells to be thrown into the circulation, "leukanemia representing therefore, a combination of changes of the same type as those encountered in pernicious anemia and myelogenous leukemia"... which really represent, most likely, different responses of the same sort of stimulus acting on the same mother cell in the bone marrow with different degrees of intensity.

SOLLMANN, T.: Astringency and Protein-precipitation by Masked Tannin Compounds. *Journal of Pharmacology and Experimental Therapeutics*, February, 1921, xvii, No. 1, p. 63.

The astringencies of "masked tannin compounds" were compared with each other and with those of tannic acid, under conditions simulating those occurring in the digestive tract. Various criteria of astringency were applied, including a new method of employing blood corpuscles. All methods gave fairly concordant results. The simplest,

and therefore the most satisfactory, appeared to be the precipitation of protein-solutions. This, in relation to the solubility and taste of the drug, should give a fairly complete picture of its field of usefulness. Great variations in the composition and properties of the different specimens of the commercial products render their exact classification difficult. However, the following conclusions appear justified:

Tannin Protein Compounds.—Contrary to prevailing opinions, these dissolve rather better in artificial acid gastric juice than in trypsinbicarbonate solution. Their solubility is so slow, however, that they could be only slightly astringent in the stomach. Considerable astringency would develop in the duodenum, when the acidity is reduced and the effects would continue somewhat into the lower intestine, following the cleavage of the undissolved proteinate. Slow solubility in bicarbonate solution is therefore a desideratum if the action is intended to continue beyond the duodenum.

Tannin-acetyl Esters.—Commercial brands are evidently mixtures of varying quality, some specimens apparently containing free tannin. The best specimens however, appear fairly uniform, and but slightly soluble and astringent in acid solution. Bicarbonate dissolves them, and hydrolyzes them slowly. The astringency goes parallel with the hydrolysis, so that the action would continue for several hours, and could thus extend into the lower intestine. They do not deserve full confidence until the commercial products are more uniform.

C. A. SCHMID.

WILLIAMS, J. R.: A Study of the Wassermann Test. Reaction in a Large Group of Supposedly Non-syphilitic Individuals, Including Large Groups of Diabetics and Nephritics. *American Journal of Syphilis*, 1921, v, 284.

Very few studies of the Wassermann reaction in nonsyphilitic individuals have been published; except for the group studied by Stokes at the Mayo Clinic and Solomon's (Solomon H. C.: *Jour. Am. Med. Assn.*, lxxiv, 788) study of 3,000 hospital admissions, none have come to the author's notice. That is to say much of the information as to the prevalence of syphilis in the public at large is

based upon the frequency with which positive Wassermanns are found in clinics where the study and treatment of syphilis is a special consideration. Such figures are obviously misleading. The author's own practice and clinic, dealing chiefly with the average American middle class, is confined to internal medicine and the routine examination of normal individuals. He is rarely consulted because of known syphilitic lesions. For some time he has made a routine practice of having a Wassermann test done upon each individual examined. More than 65 per cent of these tests were made in the laboratory of the State Department of Health at Albany. The others were made in the laboratories of the Hahnemann Hospital, Rochester, N. Y. Doubtful and positive tests of each laboratory were confirmed by control tests in the other laboratory. Besides these, a group of 110 cases of nephritis were studied of which one showed a positive reaction; also a group of 368 miscellaneous medical cases afflicted chiefly with blood, blood-vessel, lymph gland disease and simple infections of which 47 showed partial or doubtful reactions, twenty-three positive reactions.

HIRSHFELD S., AND NEUBOF, H.: The Slow Intravenous Administration of Large Doses of Sodium Citrate. *New York Medical Journal*, 1921, cxiii, No. 3, p. 95.

The author gives details on the technic in the administration of sodium citrate injections. The 30 per cent solution consists of U. S. P. sodium citrate and distilled water, which is filtered, if necessary. It is sterilized in an autoclave, and must be perfectly clear. The optimum dose is 6 grams (92.60 grains). Twenty c. c. (5.42 fluidrams) of the solution are injected.

The twenty cubic centimeter syringe is attached to a Fordyce needle, and introduced into a vein at the bend of the elbow.

Two or three cubic centimeters are injected, then an intermission of a few moments is made. The disappearance of manifestations such as salty taste, trembling of lips, tingling sensations in the extremities, dizziness, nausea, oppression, sensation of tightness around the chest or abdomen, is waited for, and then the injection is continued. The time employed must be from ten to fifteen minutes. Rapid introduction is dangerous or fatal.

All types of bleeding, internal and surgical, have been controlled by this treatment. It was employed where bleeding was anticipated at operation.

"The coagulation time is tremendously shortened within a few minutes of the introduction of nontoxic doses of sodium citrate, and this shortened coagulation time is sustained for one or more days. The bleeding time is likewise shortened, large vessels can be divided with prompt cessation of hemorrhage. Coincident with the shortened coagulation-time the venous blood is altered in color to a light arterial tint."

BUTSCH, J. L., AND ASHBY, W.: **The Effect of the Digestive Period and Other Factors in Reactions After Blood Transfusions.** *New York Medical Journal*, April 6, 1921, exiii, No. 11, p. 513.

There are harmless but unpleasant reactions which follow transfusions. The transfusion reaction resembles the reaction to a foreign protein and its cause is generally assumed to be due to a slight degree of foreignness of the blood introduced, attributable either to slight differences between some or all of the elements of the blood of different persons even within the same group, or to changes in the blood proteins, formed or unformed, brought about by the process of removing the blood from the body. Patients with normal temperatures and patients with more nearly normal hemoglobin percentages are less likely to have reactions. An increased tendency to reaction was not found when transfusions were given in series. In vitro evidence of incompatibility between blood of properly grouped donors and patients was not found; neither did the patients show in vitro evidence of incompatibility of blood for their own groups with repeated transfusions. The incidence of transfusion reactions was not affected by fasting.

J. ROSE.

SECTION ON LABORATORY AND RESEARCH

HUSSEY, R. G.: **General Leukocytic Response of the Guinea Pig During the Reaction of Artificial Immunity in Experimental Tuberculous Infection.** *Journal of Experimental Medicine*, March 1, 1921, xxxiii, No. 3, p. 337.

Guinea pigs were rendered relatively immune to infection to tubercle bacilli by earlier inoculation with avirulent organisms. Blood counts showed an increased white cell count with a relative and absolute increase in lymphocytes, associated with the immune reaction. Counts made on animals inoculated with avirulent organisms alone showed a lymphocytosis during the period of greatest reaction, while pigs inoculated with virulent tubercle organisms had an erratic course with a polymorphonuclear increase. The studies of the author indicate a parallelism between lymphoid activity and resistance to tuberculous infection and suggests an association of lymphocytes with the factors determining this resistance.

H. M. FEINBLATT.

MURPHY, J., HUSSEY, R. G., STURM, E., AND NAKAHARA, W.: **2. Effect of Induced Cellular Reaction on the Fate of Cancer Grafts. IV. Studies on Lymphoid Activity.** *Journal of Experimental Medicine*, March 21, 1921, xxxvi, p. 315.

The authors have shown in previous articles that the induction of a general lymphocytosis is accompanied by a more or less marked immunity to cancer, and that a local reaction of lymphoid cells, induced in the skin by means of *x*-rays, renders this tissue unsuitable for the growth of cancer. The reaction about a cancer graft inocu-

lated into a mouse previously injected with homologous living tissue has a great likeness to a local anaphylactic reaction and is followed by a more or less complete destruction of the tumor graft. If the cellular reaction is an important factor in the immunity phenomena, it should be possible to produce a local immunity by inducing around a graft a reaction similar to that which occurs in a generally immune animal.

The reaction of mice to foreign proteins was studied. Mouse blood was injected, and observations made, on killing the animals after 24 hours, demonstrated a considerable degree of lymphocytosis in the region of the injected blood. Another series of mice, given a second injection 10 days after the first showed a very extensive reaction.

A series of mice was inoculated with rat blood and 10 days later injected with rat and mouse tumor. These were killed in groups at 2 daily intervals and histologic examinations made. Those killed 24 hours after tumor inoculation showed a massive lymphoid and a mild polymorphonuclear reaction about the graft. The reaction had begun to diminish at the third day and the graft was more or less completely destroyed.

A study was made of the desensitizing effects of generalized doses of x-rays and showed that mice sensitized to rat blood and then given a series of x-ray doses between the time of this injection and inoculation of the cancer mixture had a decrease of protective or immunity factors present in those sensitized but not x-rayed.

H. M. FEINBLATT.

ALLEN, F. M., AND WISHART, M. B.: **Experimental Studies in Diabetes. Series II. The Internal Pancreatic Function In Relation To Body Mass and Metabolism. The Effects of Exercise.** *The American Journal of the Medical Sciences*, Feb., 1921, clxi, Part 2, No. 587, p. 165.

Dogs were exercised by hard running on a treadmill under various conditions of fasting, feeding, and intravenous glucose injections. A rise of plasma sugar, representing increased transportation, ordinarily accompanies exercise in the normal animal and the assimilation for test doses of glucose is increased. In a mild case with

abnormal hyperglycemia from defective assimilation of carbohydrate, exercise markedly diminishes hyperglycemia and glycosuria. Increased metabolism of exercise does not impose an added strain upon the internal pancreatic function. Combustion of food materials through increased muscular metabolism and mass resulting from exercise is a definite relief to the internal pancreatic function as compared with the accumulation of such materials through inactivity. Internal pancreatic secretion is an indispensable intermediary in such combustion, and exercise merely enables the muscles to use such quantities of this secretion as is available to them. Exercise cannot replace restricted diet or permanently atone for excessive diets. With marked degrees of undernutrition heavy exercise produces fatigue and strain. Rest is necessary in the severe cases. Exercise is limited to the requirements of comfort and hygiene. The thorough dietetic treatment thus involves two changes from former practice: discourages the idea that heavy exercise burns up surplus sugar; hygienic benefits of lighter exercise are made available to many patients to whom exercise was formerly forbidden.

A. T. MAYS.

DAVIS, E. G.: **Urinary Antisepsis: A Study of the Antiseptic Properties and the Renal Excretion of 204 Anilin Dyes.** *The American Journal of the Medical Sciences*, February, 1921, clxi, Part 2, No. 587, p. 251.

Sixty-one were found to possess antiseptic properties in agar, and 28 of these were effective when added to voided urine. Twenty-four inhibited the colon bacillus in urine in a dilution of 1 to 1000. In every case the colon bacillus was more resistant than the staphylococci. Antiseptic action was present in higher dilution in alkaline urine than in acid urine. These dyes, then, are more efficient in urine of a reaction which renders urotropin inert. The azo dyes proved of no antiseptic value. Of the triphenylmethanes, many were antiseptic in high dilutions in the urine, and all but one were toxic and none was excreted by the kidney. Three of the xanthin group were antiseptic in voided urine, and two were excreted to a moderate degree. Of the acridine dyes, two were antiseptic in urine. Neither was excreted. Five of the azine group were antiseptic. Fifteen dyes were

chosen to be relatively non-toxic, exerting bacteriostatic action in voided urine, two which are experimentally effective.

A. T. MAYS.

POPPENS, P. H.: **The Bacteriology of the Fasting Stomach and Duodenum. A Study Based on the Findings in Thirty Dogs.** *The American Journal of the Medical Sciences*, February, 1921, clxi, Part 2, No. 587, p. 203.

This is an experimental study based on the findings in thirty dogs. The stomach or bowel was opened aseptically. *Bacillus coli* was found twelve times out of fifteen after a fast of from 14 to 22 hours, and in the stomach this organism was found only 4 out of 15 times. *Staphylococci albus* were found 3 times in the duodenum, and 11 out of 15 times in the stomach. *Streptococci* were found equally frequently in the stomach and duodenum. Non-hemolytic streptococci were rarely found in either stomach or duodenum and hemolytic streptococci not at all. *Streptococcus viridans* was found in pure culture in only one duodenal specimen.

A. T. MAYS.

BROWN, W. H., AND PEARCE, J.: **Latent Infections with the Demonstration of Spirochete Pallida in Lymphoid Tissues of the Rabbit.** *The American Journal of Syphilis*, January, 1921, v, No. 1, p. 1.

These observations were undertaken with two objects in view, namely, the demonstration of infection following so-called spontaneous recovery or during periods of latency as the case might be, and the determination of the location of the spirochetes during such periods. The apparent abnormality of the popliteal nodes and the fact that in the active stages of infection, spirochetes were always demonstrable in these nodes by animal inoculation, suggested that the simplest method of approach to this problem was by excision of popliteal nodes and the inoculation of test animals. Six animals which had recovered from generalized syphilis were used as the basis for determining whether such animals were still infected and something as to the location of the spirochetes in cases of latent infection.

One of the animals was inoculated 4 years and 3 months prior to the examination, another 9 months, and another 7 months. At the time the examinations were made all the animals showed a suggestive adenopathy which was most evident in the popliteal nodes. In addition two of them showed slight lesions of an indifferent character in which no spirochetes could be demonstrated by dark-field examination. The others showed no lesions. The latent period of infection was of three months duration in five of the animals, and six months in the other. A popliteal node was removed from each of the animals and used for a test inoculation of two normal rabbits. Infection was produced in all cases, the incubation period varying from 31 to 44 days, which is practically the same as that given by lymph node inoculations during active stages of infection and shorter than that obtained from blood inoculations except in the most active stages of infection.

From these facts it may be concluded that rabbits which have recovered from clinical manifestations of syphilis may harbor virulent spirochetes almost indefinitely even though no further manifestations of infection should occur. Moreover, the infectivity of material from the popliteal nodes, taken in conjunction with other evidence of an affinity of spirochetes for lymphoid tissue, is interpreted as indicating that the lymphoid tissues of the body in general are probably the chief reservoirs of the virus during latent periods of syphilitic infection. From this, it is suggested that a wider application may be made of our knowledge of lymphoid involvement in the management of cases of human infection.

M. M. BANOWITCH.

MURPHY, J. B., NAKAHARA, W., AND STURM, E.: **Studies on Lymphoid Activity. V. Relation Between the Time and Extent of Lymphoid Stimulation Induced by Physical Agents and the Degree of Resistance to Cancer in Mice.** *The Journal of Experimental Medicine*, April, 1921, xxxiii, No. 4, p. 423.

This article is a continuation of these authors' work in which they show that resistance to cancer follows stimulation of lymphoid tissue by either heat or small doses of x -rays. The present paper is the result of a study to determine whether there was any quantitative relation between the degree of immunity and the amount of stimulation.

Small doses of x-ray give a sluggish lymphoid cell reaction of short duration with a definite latent period between the treatment and the evidence of marked stimulation. After heat there is a short period of depression followed by a sharp stimulation over a longer period. Cancer inoculation made in groups of mice immediately after exposure to x-rays shows little resistance, whereas inoculation made at the height of the stimulation phase shows a definite degree of immunity. Animals inoculated with cancer directly after heat treatment gave evidence of pronounced immunity, but not as marked as that shown when the inoculation is made at the height of stimulation.

The results seem to indicate that the degree of immunity is dependent upon the amount of lymphoid stimulation existing either at the time or following soon after the cancer inoculation.

H. M. FEINBLATT.

HUNTOON, F. M., AND CRAIG, S. H.: **Polyvalent Antibody Response to Multiple Antigens.** *Journal of Immunology*, May, 1921, vi, No. 3, p. 235.

The results of experiments show:

(1) No limit has been found as to number of antigens which will elicit a simultaneous response.

(2) Such responses approach in volume that obtained with single antigens.

However, the author concludes that with proper preparation of such polyvalent antigen and the proper regulation of dosage, a polyvalent can be obtained sufficiently broad to cover the fields desired with an adequate concentration of antibody.

W. LINTZ.

ALEXANDER, H. L.: **Precipitin Response in the Blood of Rabbits Following Subarachnoid Injections of Horse Serum.** *Journal of Experimental Medicine*, April, 1921, xxxiii, No. 4, p. 471.

Manifestations of apparently anaphylactic nature were observed repeatedly when several intraspinal treatments were given before intravenous therapy and had no relation to the time of the last intra-

spinal treatment. These reactions were not observed in those cases where the intraspinal and intravenous therapy was applied from the start.

With the above in mind, experiments were carried out by injecting horse serum into rabbits intraspinally and comparing the resulting formation in the blood with that induced by similar intravenous injections.

Rabbits given a single dose of normal horse serum intravenously produced precipitins in the blood in less abundance, of lower titer, which persisted for a shorter time than in those rabbits given a single similar dose intraspinally. Repeated subarachnoid injections of normal horse serum were found to produce precipitins of high titer in the blood as early as one week; whereas rabbits similarly treated intravenously, they developed no precipitins at this time. They may appear a few days later and develop a high titer.

When the precipitin content of the blood was high no anaphylactic manifestations were observed after repeated treatment with subarachnoid injections of normal horse serum.

H. M. FEINBLATT.

BUMPUS, H. C., AND MEISSER, J. G.: **Focal Infection and Selective Localization of Streptococci in Pylonephritis.** *Archives of Internal Medicine*, March, 1921, xxvii, No. 3, p. 326.

Six cases of pyelonephritis, without urinary obstruction, were studied from the standpoint of focal infection. In five of the 6 patients, twenty-one infected teeth, two infected roots, and one impacted tooth were found. Cultures from all but the impacted tooth, which was sterile, showed the presence of a green-producing streptococcus. The primary cultures in glucose-brain broth were injected intravenously into twenty-seven rabbits. Twenty-four (89 per cent) developed lesions in the kidney, and eight in the bladder, four in the muscles, three in the stomach, three in the endocardium, two in the myocardium, and four in the joints. The lesions outside the urinary tract were relatively slight in each case.

In a second animal passage, the rabbits were injected with streptococci isolated from the kidneys of rabbits infected in the first series. Eleven rabbits were injected with three strains. Seven rabbits (63

per cent) had lesions in the kidneys, one had lesions in the kidneys and bladder, and one in the bladder alone. One had slight lesions in the muscles, one in the stomach, and one in the myocardium.

Six rabbits were injected from cultures from the kidneys of the second series, and half of the third series developed urinary tract lesions, none showing lesions elsewhere.

Cultures from the tonsils of one of pyelonephritis showed both a viridans and a staphylococcus, but when the pus expressed from these tonsils was injected without incubation into a rabbit, lesions were induced in the kidneys from which there was recovered only the streptococcus. Mixed cultures from the tonsils produced the same results in two other rabbits, and this strain was carried through two animal passages.

This series of experiments, showing the tendency to selective affinity for the urinary tract of streptococci recovered from foci of infection in the mouths of patients suffering from pyelonephritis, is compared with the series of Rosenow, in which the injection of 208 animals under the same conditions with streptococci from patients having diseases other than urinary infection resulted in localization in the urinary tract in only seven animals.

The authors conclude that pyelonephritis may often be due to focal infections harboring streptococci which have a selective affinity for the urinary tract, and that the colon bacillus which is commonly found and generally believed to be the cause, is of secondary importance.

T. HOWARD.

FLEISHER, M. S., AND ARNSTEIN, N.: **Specificity of Anti-organ Sera.**
Journal of Immunology, May, 1921, vi, No. 3, p. 223.

The authors show it has been possible to demonstrate tissue specificity in liver, kidney, spleen, brain, muscle and testicle. In some cases specificity is absolute, in others it is only relative. The difficulty in demonstrating this specificity lies apparently in the extreme complexity of the biological composition of the tissues, and possibly in the interrelationship existing between various tissues.

W. LINTZ.

GREENE, C. W., AND GILBERT, N. C.: **Studies on the Response of the Circulation to Low Oxygen Tension. III. Changes in the Pace-maker and in Conduction During Extreme Oxygen Want as Shown in the Human Electrocardiogram.** *Archives of Internal Medicine*, May, 1921, xxvii, No. 5, p. 517.

Volunteer soldiers were subjected to extreme degrees of oxygen want without change in the CO_2 content of the air breathed, in the course of studies carried out in the Division of Aeronautics, U. S. Army. Electrocardiographic studies brought out fairly uniform changes in the behavior of the heart. Up to a certain point, the changes were practically those ordinarily seen during exercise. Beyond this point, which the authors term the critical point, there was a sudden change, manifested by a great slowing of the rate, progressive descending displacement of the pace-maker, or center of rhythm production toward and into the A-V node, and interference with normal conduction, leading to dissociation.

T. HOWARD.

ELLERMANN, V.: **A New Strain of Transmissible Leukemia in Fowls (Strain H).** *Journal of Experimental Medicine*, April, 1921, xxxiii, No. 4, p. 539.

The writer has previously reported three types of leukemia in the fowl, the myeloid, the lymphatic and the intravascular lymphoid type. Earlier experiments had demonstrated that the various types of leukemic disease could be produced by the same experimental strain due apparently to the same virus.

A hen studied gave a red cell count of 1,080,000; leukocytes 720,000; with a differential as follows—poynuclears 2 per cent, myelocytes 15 per cent, large mononuclears 4 per cent, lymphocytes 4 per cent, and lymphoid cells 75 per cent.

Eight normal hens were inoculated with citrated blood from the leukemic hen and of these one developed leukosis. Inoculations were continued through 12 generations, 122 birds being inoculated. Thirty-four instances (28 per cent) gave positive results. Other earlier experiments with other strains gave from 22 per cent to 44 per cent positive results. A certain percentage of birds is more or

less immune to initial injections but can be made susceptible. Increase in virulence resulted in passage. This manifested itself by a shortening of the interval between incubation and death.

Attempts were made to produce immunity subcutaneously by inoculation of the virulent material but with no success.

The inoculation of material from the human leukemic patient into the fowl was without result.

H. M. FEINBLATT.

MYERS, V., AND CROLL, H. M.: **The Determination of Carbohydrates in Vegetable Foods.** *Journal of Biological Chemistry*, 1921, xlv, No. 3, p. 537.

Most of the literature on carbohydrate contents of vegetables is based on Atwater and Bryant, who include "fiber" in the figures for total carbohydrate. It has generally been determined by difference, so that all errors of all other analyses fall upon this constituent. About the form of available carbohydrate in vegetables little is recorded in literature. But it is of importance in cooking to know whether to conserve the carbohydrates as much as possible, or to remove them, as for diabetics. The sugar contents in vegetables has been more frequently given.

The authors, in this study, worked out a simple colorimetric method with sodium picrate to determine available carbohydrate in vegetables and fruits, and the methods of cooking for diabetics. The necessary removal of carbohydrates was considered. The total carbohydrates were determined by direct hydrolysis after heating the food with approximately normal hydrochloric acid on a reflux condenser for from 2½ to 3 hours, and subsequent colorimetric determination of the reducing sugar formed. Some improvements were made in the method. The free soluble sugars were extracted with water from the ground vegetable and were determined by reduction of sodium picrate to sodium picramate, both reducing sugar with picric acid. Some of the indigestible "fiber" and hemicellulose may be hydrolyzed, and fructose and maltose partly decomposed. To avoid this "taka-diastase" was used.

Potatoes, peas, and lima beans apparently contain a large proportion of starch in comparison with soluble sugars. A green banana

with greenish yellow peel was found to have 1.17 per cent reducing sugar, 4.6 per cent sucrose, 15.62 per cent starch. A very light banana with light brown peel had 7.08 per cent reducing sugar, 11.19 per cent sucrose, and 9.71 per cent starch.

The ordinary method of boiling vegetables for a minimum time and with a small amount of water was found to remove from 23 to 66 per cent of the carbohydrate, leaving from 34 to 77 per cent of the carbohydrate of the raw vegetable in the cooked sample. The removal of carbohydrate from vegetables is favored by the soluble form, the increase of time of boiling and the volume of boiling water. The greater the proportion of water used in boiling the vegetable and the longer the time of boiling, the greater is the loss of carbohydrate in the boiling process. The greatest loss occurs in those vegetables in which most of the carbohydrate occurs in a soluble form. The diabetic dietary advocated by Allen, of thrice boiling vegetables, causes a loss of from 62 to 88 per cent of the carbohydrate, that is from 11.6 to 38 per cent are retained, where the "boiling water" used is relatively much. In thrice boiled squash where less water was used, 53 per cent are retained, that is almost as much as in the one boiled once. Wardall has shown that in 3.4 and 5 extractions, by boiling celery, fresh spinach, and rhubarb, all the reducing substance is removed. Six extractions are required for carrots, 9 for asparagus, and 16 for cauliflower.

MACNIDER, W. DE B.: **A Preliminary Paper on the Relation Between the Amount of Stainable Lipoid Material in the Renal Epithelium and the Susceptibility of the Kidney to the Toxic Effect of the General Anesthetics.** *Journal of Pharmacology and Experimental Therapeutics*, May, 1921, xvii, No. 1, p. 289.

In his conclusions, the author states that in normal animals of different age periods there has been demonstrated a larger amount of stainable lipoid material in the kidneys of old dogs than in the kidneys of puppies and young dogs. Furthermore, the distribution of such material varies with age of the animal. In puppies, such lipoid material is confined to the cells of the loops of Henle. In very old animals, stainable lipoid material can be demonstrated in very small amounts in the convoluted tubule epithelium.

When normal animals of different age periods are anesthetized by either chloroform or ether, there is found to exist a definite relationship between the toxicity of the anesthetic for the renal epithelium and the age of the animal. These anesthetics are more toxic for the kidneys of old animals than they are for the kidneys of puppies and young dogs. This variation in toxicity is expressed histologically by more extensive degenerative changes in the kidneys of old animals and by a more marked decrease in the functional response of the kidneys of such animals.

Chloroform has been found to be more toxic for the kidneys of both old and young normal animals than ether. The former anesthetic induces more evidence of epithelium degeneration in the kidneys. When kidney tissue of normal animals of different age periods that have been anesthetized by chloroform or ether is stained for lipid material and studied histologically, there has been found to occur a greater accumulation of such material in the kidneys of those animals anesthetized by chloroform than in the kidneys of the animals anesthetized by ether.

The amount of stainable lipid material in the renal epithelium of animals of different age periods determines the susceptibility of the kidney to the anesthetic, and the anesthetic employed plus the age of the animal furthermore determines the amount of such material which accumulates in the epithelium during a period of anesthesia.

When naturally nephropathic animals are killed without the use of an anesthetic and the kidney studied histologically, the animals have been found to have a glomerulo-nephropathy with but slight histological evidence of epithelial injury. When tissue from such kidneys is stained for lipid material, the epithelium of the loops of Henle and the convoluted tubule epithelium is found to contain stainable lipid material which is much in excess of that which can be demonstrated in the epithelium of normal animals.

A severe injury to the glomerulus is apparently first expressed, insofar as the renal epithelium is concerned, by such a disturbance in the metabolism of these cells that lipid material accumulates far in excess of the amount normal for the cells. When such naturally nephropathic animals are anesthetized by chloroform or ether they show an increased susceptibility to the anesthetic which is characterized locally in the kidney by a great increase in the amount of stainable lipid material and by the development of marked degenerative changes in the tubular epithelium.

The severity of the degenerative changes and the accumulation of stainable lipoid material are far in excess of similar changes induced in the renal epithelium of normal animals by the same anesthetics during a period of anesthesia of the same duration. The general toxic effect of ether and chloroform in both normal and naturally nephropathic animals is shown by a disturbance in the acid-base equilibrium of the blood. The depletion of the alkali reserve of the blood which follows the use of these anesthetics is more marked in old animals than in young animals. Furthermore, the use of chloroform effects a greater disturbance in the acid-base equilibrium of the blood in animals of different age periods than does ether. Finally, the naturally nephropathic animals show even greater depletion in the alkali reserve of the blood following the use of the anesthetics than do the very old normal animals. In conclusion, the results of the investigation indicate definite relationship between the amount of stainable lipoid material in the renal epithelium of both normal and naturally nephropathic animals and the susceptibility of this epithelium to the toxic effect of both ether and chloroform.

C. A. SCHMID.

BLAKE, F. G.: Experimental Measles. Read at the Seventy-second Annual Session of the American Medical Association, held in Boston. *Medical Record*, July 2, 1921, c, No. 1, p. 33.

Prophylactic inoculation against measles is being conducted in monkeys with intratracheal nasopharyngeal washings from early cases reached after an incubation period of from 7 to 10 days, with conjunctivitis, Koplik spots, exanthem, fever and leukopenia. The disease was transmitted from monkey to monkey, by blood, skin and mucous membrane emulsions, nasopharyngeal secretions and by contact. The virus could be attenuated by repeated blood passage or by preservation in glycerol.

In the discussion, Dr. Chas. Herrmann said that he had begun to immunize infants in 1913. In large cities where practically all the mothers had had measles, a relative immunity was conferred on the offspring which lasted about five months. Infants should be inoculated between their fourth and fifth month of age. He took swabs from children with beginning eruption and kept the material in seal-

ed capillary tubes. The nasal mucous membranes of children under five months was touched with it. One hundred and fifty inoculations have been made. Twenty-five of the inoculated children were known to have been exposed to infection. Two of them had contracted the disease.

Dr. H. F. Helmholtz called attention to the work carried on at the Founder Clinic in Munich. There 173 cases had been injected with 5 c. c. (1.35 fluidrams) of blood serum taken from convalescent patients from seven to fourteen days after the temperature had dropped to normal. They had been absolutely protected against measles.

KRUMWIEDE, C., AND NOBLE, W. C.: **A Note on the Claim that Agglutinins are Lipoidal in Nature.** *Journal of Immunology*, May, 1921, vi, No. 3, p. 201.

Agglutinins are not lipoidal in character to the extent that they are soluble in lipoid solvents. In no case were the authors able to reduce the titer of extracted sera beyond a reduction which is explainable by manipulation on the serum. In no case was there a transfer of agglutinins by the extraction solvent where, at the same time, a transfer of antigenic proteins could not be demonstrated. Methods used were simple but sufficed to show the solubility of agglutinins in the solvents used if they were soluble in these menstrua.

W. LINTZ.

STEWART, G. N., AND ROGOFF, J. M.: **The Action of Drugs upon the Output of Epinephrin from the Adrenals.** *Journal of Pharmacology and Experimental Therapeutics*, April, 1921, xvii, No. 3, p. 227.

After the administration of physostigmin, either intravenously or subcutaneously, in cats, the epinephrin output of the adrenals was found to be augmented to as much as ten or fifteen times the initial output. The stage of augmentation is prolonged and is preceded by a transient diminution. No evidence was obtained that after section of the splanchnics and other nerves going to the adrenals, physostigmin can increase the epinephrin output by peripheral action.

C. A. SCHMID.

MUECH, N., AND MUECH, J.: **Studies on the Bacteriology of the Alimentary Tract.** *New York Medical Journal*, May 18, 1921, cxlii, No. 14, pp. 713-721.

During operation, cultivations from the large intestine were made immediately after colectomy, and at the same time cultures were often secured from the last coil of the ileum. The ileocolic lymphatic glands were also obtained from the same source. The chyme at higher levels was sampled at laparotomy by injecting—with a syringe—20 c. c. of sterile water into the appropriate loop and withdrawing the fluid again with its complement of debris. Streptococci are present in the alimentary tract in a large proportion of mankind at all ages. Under conditions of disease, modifications often arise as follows: (1) The number of streptococci increases both absolutely and relatively to the rest of the flora; (2) new morphological strains appear in great variety. The new strains vary among themselves in chain length, the size of the cocci, their hemolytic power, their color reactions on blood agar, their saprophytic vigor and their infectivity. Most of them grow in chains of more than fifteen members, others are short-chained. Chain length is of no value as a criterion of pathogenicity. The streptococci have been divided provisionally into (a) short chained *Streptococcus brevis* (Lingelsheim type). (b) short chained streptococci of low saprophytic power, and (c) long chained streptococci or the *Streptococcus longus* Lingelsheim type.

Methods hitherto adopted for the differentiation of streptococci afford no criterion which can be used for the recognition of the streptococci of the alimentary tract as a strain of organism distinct from other streptococci. There is one biological property, great acceleration of growth following the addition of 2 per cent dextrose to nutrient broth, which appears to be sufficiently characteristic to fill the gap. The term glycophylicis suggested to distinguish streptococci showing this rapid growth in glucose broth. Glycophilia is a property peculiar to streptococci of alimentary origin and is almost universal among the streptococci present in the bowel. The proportion of streptococcal strains at any point which possess extreme glycophilia increases progressively at successive intestinal levels from mouth to anus. A streptococcus can possess extreme glycophilia and at the same time considerable infective power. Such an organism can readily cause chronic infection of the bowel. A well-defined pattern of

distribution of *Streptococcus longus* in the alimentary canal has been observed. Extensive streptococcal infection of the small intestine may exist even when repeated cultivation of the feces fail to yield any growth of *Streptococcus longus*. The presence of carbohydrate is the most potent factor in determining the dominance of glycophilic streptococci over *Bacillus coli* at any level of the intestine. Laboratory experiments with symbiotic coefficients and clinical observations are recorded in support of this statement. Absolute suppression of *Bacillus coli* by glycophilic streptococci takes place when the hydron concentration is measured by $\text{PH}=5.2$. The streptococcus itself dies if the PH falls below 4.6. *Streptococcus fecalis* as well as glycophilic streptococcus *longus*, can suppress *Bacillus coli* when grown in glucose broth. This property is also possessed by a small proportion of long chained cocci from the mouth. The following factors appear to control the evolution of chronic streptococcal infection of the bowel: (a) The presence in the mouth of centers for the production of glycophilic streptococci; (b) impaired digestion; (c) loci of stagnation in the intestines, and (d) diminished resistance of the tissues generally or locally.

J. ROSE.

WEBB, G. B., GILBERT, G. B., AND RYDER, C. T.: **The Adrenals and Thyroid in Experimental Tuberculosis.** *American Review of Tuberculosis*, May, 1921, v, No. 3, p. 266.

In summarizing, after experimentation on a great number of guinea pigs, the authors conclude as follows:

(1) The adrenals become enlarged in guinea pigs in the course of generalized tuberculosis, and also in pyogenic infections.

(2) The thyroid gland also appears to enlarge in experimental tuberculosis of guinea pigs, as well as in certain forms of human tuberculosis.

(3) This enlargement of adrenals and thyroid is probably in response to a demand for increased function, and it may be desirable to supplement this tendency by giving adrenal and thyroid extracts in selected cases of human tuberculosis.

C. A. SCHNID.

SECTION ON PEDIATRICS

KOHLER, G. F., AND PALMER, D.: **Intestinal Stasis.** *Northwest Medicine*, 1921, xx, No. 1, p. 10.

The authors advocate painstaking examination during childhood for the prevention of intestinal stasis in later years. While the cause given by some authorities for the disease not many years ago, that is bacillus epilepticus in the colon, can hardly be acknowledged, it is nevertheless true that adults suffer greatly from nervous phenomena of a neurotic type.

Patients will present dizziness and other neurotic symptoms, and a history of having been constipated and poorly nourished. This is especially the case in females. Examination with the barium meal will reveal intestinal stasis, acquired from neglect of the important bowel function during infancy, and especially during later youth, when disregard of such physiological functions are general.

The history of children presenting themselves at the medical department of the Oregon University, is taken, and the dietary habits and general states of health are noted. The children are measured and weighed. A barium meal consisting of fourteen ounces of Bulgarian milk and three ounces of barium sulphate is given forty-eight hours before the examination, another meal being given at the time of examination. The fluoroscope is used in recumbent and in erect positions. Shape, position and size of the viscera and stomach are noted, as is the amount of barium retained in the colon from the first meal.

One hundred cases were examined. In 97 barium was present after twenty four, in 57 after forty-eight hours. Stasis was present in over 50 per cent. In 26 cases there were from four to eight ounces retained in the colon after sixty hours. Ptosis was

found in 62 per cent, the percentage being higher after nine years of age.

The majority of children were ill nourished, round shouldered. Exercises with dumb bells and Indian clubs were given.

If these children grow up without being trained into good physiological habits the results are vague symptoms of the neurotic type and established intestinal stasis.

HARBITZ, F.: "Encephalitis" Neonatorum. *Norsk Magazin for Laegevidenskaben*, 1921, lxxxii, No. 1, p. 25.

In the pathological anatomical institution of the National Hospital at Kristiania, an autopsy was made of a fetus, 30 weeks of age, which lived 14 hours after birth. There were no signs of congenital syphilis. The liver was atrophied, there was icterus, ascitis, and nephritis of a doubtful character, hemorrhages of the skin, the kidneys and the peritoneum, furthermore, hemorrhage of the meninges which evidently started at a branch of the arteria fossae Sylvii in a congenital aneurysm. Internal hydrocephalus had been caused by large grayish-white, and yellowish-white, dense patches of the central ganglia and the cerebral cortex. Some of these necrotic patches were calcified. Microscopically fatty nuclear cells could be detected.

The etiology is uncertain. The author thinks that degeneration and necrosis caused abnormalities of the blood-vessels. The diagnosis had been atrophy of the liver with icterus and ascitis, nephritic (?) degeneration of the cerebrum and hydrocephalus ("encephalitis neonatorum"), meningeal hemorrhage with aneurysm of the branch of the arteria fossae Sylvii, and hemorrhage of the skin, kidney and peritoneum.

MODIGLIANI, E., AND DE VILLA, S.: Intracutaneous Reaction for Early Diagnosis in Pertussis (L'intradermoreazione per la diagnosi precoce della pertosse). *La Pediatria*, April 15, 1921, xxix, 337.

Early diagnosis is difficult in the early stage. The authors, for this purpose, prepared an autolysin of bacilli of Bordet and of Gengour. De Villa, in 1911, utilized sputum of pertussis patients

for an antigen, but it was necessary to find a quick and safe method. Prof. Levi della Vida, at the Hygienic Institute of the University of Rome, made a preparation by diluting a loop of normal Bordet-Gengour (10 in 10 c. c. distilled water) and a few drops of a 3 per cent toluol solution in 1 c. c. distilled and sterilized water. It was placed in the thermostat for 24 hours, at 37° C. (98.6° F.). Examination showed that the bacilli were dead. The authors kept their preparation in the thermostat for 48 hours. For comparison an autolysin of bacteria coli was prepared in the same manner. Two drops of 1/10 c. c. were used for the intradermal reaction.

The autolysin was used (1) on 50 children who had had various diseases, but were immune to pertussis, (2) on 38 children, from 5 months to six years of age, suffering from pertussis with typical symptoms of whooping, cyanosis, vomiting, etc., (3) on 10 children, after pertussis, (4) on three children who were suffering from other affections of pertussis.

The results were: (1) No positive reaction was found in the children immune from pertussis; (2) no reaction occurred from the bacillus coli autolysin; (3) all children, suffering from active pertussis, showed reaction, either red papules, after 24 hours; it was more severe in children with recent infection, that is of from 7 to 15 days; and (4) in children after recovery from pertussis, after 2 months the reaction was negative or very weak.

CALLISON, F. G.: Acute Purulent Otitis Media in Children. *Medical Record*, 1921, xcix, 386-390.

Acute purulent otitis media in children is practically always secondary to a nasopharyngitis. A very large percentage of the children that suffer from running ears are also sufferers from adenoids and are temporarily or permanently mouth-breathers. The tension from the pharynx to the middle ear occurs in two ways,—either eventually from a cold or the infection may be severe from the start. From this latter class are those cases which go to rapid mastoid infection. The report on smears from acute ears is usually that of a mixed infection, which is undoubtedly correct. The pathogenic organism predominating in the tonsils and adenoids seems to be the *Streptococcus hemolyticus*, and this organism predominates in ear cultures

at the later date when cultures are called for. Next in importance to the otologist is the streptococcus capsulatus or the Pneumococcus Capsulatus, No. 4, as it has come to be called from the agglutination reaction. Direct inspection of the tympanic membrane is the only method of detecting all cases of acute purulent otitis media in babies and small children in the early stages. In no other way can the changes in the contour and color of the drum and auditory canal be appraised at their true value. This can be done with a convenient pocket battery otoscope. Aside from the bulging and redness of the drum membrane, there may be no other symptom. There may sometimes be a slight pain in the tragus on pressure. Likewise, there may also be pain over the mastoid. Fever may or may not be present. In those neglected or improperly treated cases of purulent otitis media which are allowed to become chronic, the amount of useful hearing that remains to the patient is problematical, but will be slight. Adenoids must be removed from all children showing a mouth-breathing tendency when asleep, and from all subject to recurrent colds.

Once a purulent condition has established itself in the middle ear of a child, no time should be lost in making a wide opening through the drum membrane. General anesthesia should be used unless a severe lung involvement has supervened. The choice of the anesthetic is left to the choice of the physician. Ethylchlorid—in experienced hands—is an ideal anesthetic for these short operations. Some fear any anesthetic containing a chlorin radicle. If an inexperienced anesthetist must be accepted, the following would seem to be a safe rule: In children under six months, a few drops of chloroform on a handkerchief, with careful watching and prepared to change to ether on the slightest indication. From six months to two years, ether is safe and the primary anesthetic stage gives ample time to do a double myringotomy, so that there is but little nausea in most cases. From two years up, when the respiratory muscles have sufficiently developed for rebreathing, nitrous oxid alone or combined with oxygen is a very satisfactory anesthetic. On the second or third day after the performance of a myringotomy, the following:

Tincture iodine	gtt xv
Phenol, 95 per cent	gtt xv
Alcohol	3 ij
Distilled water, q. s. ad.	3 j

does very well as an antiseptic solution used after syringing.

Time of cure varies between one and six weeks. If the adenoids are removed and the discharge threatens to become chronic, it becomes necessary to consider the advisability of performing a mastoid operation, even in the absence of positive symptoms of mastoid involvement.

DE ANGELIS, F.: Affection of the Oral Cavity with Fusiform and Spirillae of Vincent (Affezioni della cavità orale da associazioni fusospirillare di Vincent). *La Pediatria*, April 15, 1921, xxix, 339.

Vincent, Plaut and Bernheim have been followed in their studies by many. Vincent's bacillus is fusiform and has flagellates, and is somewhat curved, from 2 to 8 microns long. It is an anaërobic bacillus. Its culture is somewhat difficult, but the anilin dyes bring it out nicely in a blue tint, under the use of Leishman. It is always accompanied by large spirals. The author has always found this symbiosis in stomatitis and angina. It is the cause of purulent conditions in the oral mucous membrane. It produces deep ulcerations, which bleed easily in the mucous membrane of the mouth and the tonsils. It spreads, and causes abundant nasal secretions and bad odor.

Among 302 cases of oral affections, the author found 44, 37 per cent, to be Vincent's angina. Only 9 of tonsillar affections, among 101, were of the Vincent type. Among 22,000 children, treated for various complaints, there were 143 cases of fuso spirillar affection. It is most frequently observed between the ages of two and six years. Among the lower classes it may be overlooked, and is usually of an ambulant course.

Hygienic measures are paramount. It more frequently occurred in children, who were suffering or who had recovered from other diseases: in 26 of 143 cases it was measles, in 21 intestinal affection, in 6 exudative diathesis, in 5 respiratory disease, in 2 whooping cough, in 2 influenza, in one nephritis, in 12 tuberculosis, and in 14 syphilis. Only in 2 cases the author could state infection as etiological. In 28 cases the gingival mucous membrane, in 22 the cheeks, in 88 gums and cheeks, in 1 the palate, in 5 the tongue, in 2 the nose, in 9 the tonsils were involved.

The pathological findings are inflammation, ulceration and necrosis. The ulceration is grayish and easily recognizable. Its base

becomes necrotic and bleeds easily. Feter is typical. The disease will last from 20 days to one month. The author has seen cases lasting five months. Literature gives cases lasting one year. The stage of tumefaction and salivation lasts about four days. Then vivid red inflammation sets in. In some cases ulceration will go on to the bone, and sloughing loosens the teeth. If tonsillar involvement occurs it is usually unilateral.

The treatment consists in washing the membranes with H_2O_2 , and subsequent dry spraying of calcium chlorin four to five times a day.

JAMES R. F.: **The Prognosis of Nephritis in Childhood.** *Journal of the American Medical Association*, February 19, 1921, lxxvi, No. 8, p. 505.

The study was undertaken to determine: (1) how many patients that had had acute nephritis recovered entirely; (2) how many patients developed the chronic type; (3) the present condition of the chronic type; and (4) the ultimate prognosis.

During the last sixteen years the author has examined seventy children who had had nephritis in the Children's Hospital. The examination included the cardiovascular system, hemoglobin, urinalysis, present health of the child, record of the patient's condition while under treatment, and the etiology.

Summary and Conclusions.—(1) In acute nephritis the greater percentage of patients recover absolutely, yet no one is justified in saying a child is well by one or several negative urinary findings, until after the child has lived under ordinary environment and on a regular diet for a considerable period. Then, with the urine negative, chemically and microscopically, one can say the child is cured. The prognosis in the acute exudative type with edema and a diminished urinary output is less favorable than in the acute hemorrhagic type without edema. Thirteen or three per cent of 67 acute cases developed the chronic type of the disease.

(2) There is no specific guide to prognosis in the chronic type. All modern laboratory methods should be employed and the prognosis should be based on those findings. Many patients with mild chronic nephritis recover. Diseased portions may recover even if there is

considerable degeneration, and neighboring portions of the kidney may hypertrophy and carry on the extra work.

(3) Many will stand severe infections without acute exacerbations of nephritis, but they are more prone to follow upper respiratory infections. For this reason all foci of infection should be treated.

GODDARD, H. H.: **The Problem of the Psychopathic Child.** *American Journal Insanity*, 1921, lxxvii, No. 4, p. 511.

Lately a great part of juvenile misbehavior has been found to be due to improper brain function on account of disease, similar to that in adults. In making the tests for efficiency of a child's brain function, a basal year of age is assumed. And if tests show reaction of ages more than 4 years above the test-child's age, it has been found to indicate psychopathy. A psychopath is apt to be poor in memory, in association and in the weights, while he is apt to be good in comprehension and reasoning. The feeble-minded child is apt to have a rote memory ability many years above any other ability. The psychopath uses many-syllabled words where the ordinary child uses simple words. In the performance tests a differing of more than 4 years may be taken as an indication of psychopathy, orientation, if unusually poor or unusually good, and shows a verbalistic tendency. In school work, ability two grades above the expected, lack of coherence, ambiguity, lack of circumstantiality in rendering its life story may show a psychopathic tendency.

During the examination these children may show extreme lack of adaption to any test, negativism, peculiar emotional reactions, excitability, etc.

The children are usually solitary, they do not get along well with other children of the same mental level. If they are feeble-minded psychopaths, they are constantly disagreeing with other feeble-minded children who are not psychopathic; the same is true of normal children of a normal level. They are apt to prefer adults. Their games seem to have a queer monotony. They are apt to have strong likes and dislikes regarding food. Those of low grade are destructive, and have violent tempers; they may be moody. They tend to being easily depressed. In some cases they are exalted. They are not usually

fond of other children or of pets; they may have night terrors. They often suffer from nocturnal enuresis up to 15 and 16 years of age.

In school they get along well until they reach the fourth or fifth grade. They are apt to be poor in geography and spelling. They are usually difficult to handle in the regular grade work. These children are a worry to the teacher, as the regular punishments do not fit.

VEAU, V., AND RUPPE, C.: **Bifid Appearance of the Tongue, Due to a Short Frenum.** *Archives de médecine des Enfants*, Paris, February, 1921, xxiv, 113-115.

The patient's tongue was bound entirely by a short, thick, cartilaginous frenum giving the appearance of a cleft tongue. At the center of the apparant cleft was a small median lobule the size of a cherry stone. The frenum was cut and the median lobule excised. The complete function of the tongue was regained. The authors cite similar cases that have been reported.

W. C. DAVISON.

LERI, A.: **Hemicraniositis.** *Archives de médecine des Enfants*, Paris, March, 1921, xxiv, 169-174.

Under this name, Brissand and Lereboullet described two instances of a bony hypertrophy limited to the area supplied by the trigeminal nerve on one side and more especially to the area supplied by the ophthalmic branch. This condition was congenital. At the age of 20 years, one of these patients developed epileptiform convulsions while the other died at the age of 29 from the effects of a brain tumor. At the autopsy of the latter the brain was found to be covered with a series of calcified tumors apparently angiolithic sarcomata in structure. The authors believe that the external surface of the dura mater during the period of ossification, was responsible for the hyperostitis and that its internal surface later produced the angiolithic tumors. The other cases described in the literature as this condition represented entirely different syndromes, some being endo-theliomata, others due to injuries, etc. These occurred late in life.

Leri reports a true case of hemicraniositis in a boy of 10 years. The hyperostitis of the right side of the skull was noted at birth and has increased in size. As yet no signs of a brain tumor have arisen but the author is in a quandary as to whether to operate now with the hope of finding an early removable tumor or whether to wait for definite symptoms. He believes these three cases are instances of a clinical entity.

W. C. DAVISON.

COMBY, J.: **Migraine in Infants.** *Archives de médecine des Enfants*, Paris, January, 1921, xxiv, 29-49.

Comby thoroughly analyses his experience with 15 cases of this condition in children of from three to thirteen and half years of age in 7 of whom the attacks commenced before the sixth year and in one before the sixth month. Nine of the patients were boys and 6 were girls. The clinical picture is similar to that in adults, though less severe. Sharp excruciating pains in the head predominate on one side though they are not as clearly hemi-cranial as in adults. The pain usually radiates about one orbit. The vision may be colored. Photophobia and sensitiveness to noise are present. There may be occasionally delirium. Vomiting and anorexia are constant symptoms. The attack in nurslings may last only from two to three hours while in twelve-year old children it may continue 48 hours. The usual duration is twenty-four hours. The health is usually perfect between attacks although some children may be listless for a few days after one. The interval between attacks is longer in the very young infants and may last for several months, but become shorter as the child ages so that some children have them twice a week. In girls, puberty appears to increase the frequency of the seizures. A sojourn in the country or sea shore, a vacation from school, the reduction of studies, the betterment of the general hygiene and sometimes a vegetable diet reduces the severity and number of attacks. Comby believes that children with migraine may present other symptoms of the neuro-arthritis diathesis and that gout, asthma, gravel, obesity, diabetes, hysteria, etc. are not rare in these individuals in later life or in other members of the same or next generation. In none of the 15 cases were there any nasal, auricular or pharyngeal lesions to which the

migraine might be attributed. The disease usually continues into adult life and disappears during old age. In one case the attacks ceased with the onset of menstruation.

Migraine by its photophobia, periodicity, localization and vomiting may be differentiated from the headaches due to anemia, eye strain, growth, overstudy, infectious diseases, malaria, overfeeding, brain tumors, and masturbation. It is practically always hereditary especially from the maternal side. The attacks may be incited by physical and mental fatigue, disappointment, noise, strong odors, indigestion, etc. Treatment of the immediate attack consists in placing the patient in a quiet, dark room and giving sedatives by rectum if the nausea prevents oral administration. Cold baths are sometimes beneficial. Any coincident disease or condition should of course be corrected. The condition cannot be cured but may be attenuated by the procedures outlined. .

W. C. DAVISON.

SECTION ON
ROENTGENOLOGY AND ELECTRO-
THERAPEUTICS

JELLINEK, S.: **Pathology from Various Electric Currents** (Zur Pathologie der elektrischen Strommarken). *Wiener klinische Wochenschrift*, May, 1921, xxxiv, No. 20, p. 239.

In the literature on electric accident, lesions of the skin are called "electric burns", "eigenaardige Huidverbranding", etc., although many of these skin lesions have nothing whatever to do with burns.

Kawanuma has made histological examinations of these lesions. The typical change is the elongation of the Rete-cells, especially the basal cells of the Rete Malpighii. They become long and thread-like, and are arranged in bundles along the route the current took. The nuclei are also drawn into a long shape, but not destroyed. The papillae of the cornea become thinner, shorter, and retracted. They do not remain undulated, but are straightened out.

This would have an effect on daktyloscopy, for the thumb and finger marks would become indistinct. Sometimes this change in the epithelial ridges is the only change found. The naked eye finds a greater reflexion in these parts of the skin. The microscope (6X) will reveal the lesion.

DUNHAM, H. K., AND SKAVLOM, J. H.: **A Comparative Study of the Pathology and X-ray Densities of Tuberculous Lung Lesions.** *American Review of Tuberculosis*, v, No. 4, p. 278.

This article is beautifully and completely illustrated and well worth study of the original article. In concluding the authors bring out the following:

This study of abnormal lung densities has been limited largely to normal and tuberculous tissue. Further studies are necessary and hold great promise. Normal lung tissue can be detected with accuracy so far as our experience has been able to determine.

The case of detecting abnormal lung densities is due to slight densities cast by normal lung structure.

"Peribronchial and perivascular thickening" does not always mean "peribronchial or perivascular tuberculosis". We have never found it associated with tuberculosis in an adult unless accompanied with fans toward the periphery. By this we do not imply that it may not be associated but that the fact that we have never found it disproves its diagnostic value.

The great value of *x*-ray study is that it can be used during the life of the patient to ascertain the character and extent of the lung lesions and to follow their development. Certain densities suggest definite cellular pathology. Etiology is deduced by a study of the entire lung fields, and with a less degree of accuracy, a prognosis is made.

The independent *x*-ray report from a purely laboratory standpoint has great value; but its greatest value is found when it is used to interpret in terms of definite pathology the physical findings by one trained to study the entire economy of the patient. We wish to warn against the reverse method of study, namely, the attempt to study the plates in the light of the physical examination and the clinical condition of the patient. Almost any pathology can be read into a plate by a clinician with keen imagination. We believe that an effort should be made to correlate our knowledge and determine a standard terminology so that we may arrive at a standard interpretation of *x*-ray chest plates.

C. A. SCHMID.

WACHTER, F.: **The Influence of Roentgen Rays on the Gastric Secretion** (Der Einfluss der Roentgenstrahlen auf die Magensekretion). *Strahlentherapie*, April, 1921, xii, H. 2, p. 456.

Bruegel is of the opinion that roentgen rays act as diminishers of the glandular secretion, and that acidity in general is decreased. In hyperchlorhydria where no ulcer was demonstrable he had his quickest results. Where chronic ulcers were present the decrease of acid-

ity occurred more slowly. In hypoacidity and anacidity nothing was gained by x-ray treatment. The author tried to prove these observations made by Bruegel. In 8 normal cases the acidity in six was diminished, especially the free acid, and even deficiency ensued. In 2 patients with gastric neurosis but normal acidity, the latter was increased after the second irradiation. Four cases of hyperacidity showed a decrease. In a case of an old gastric ulcer, decrease of acidity was obtained after a longer series of treatment. Where free acid was absent, deficiency became still more marked after treatment. In gastric neurosis this one quarter of the skin dose noted is an irritant. The irradiation was followed by nausea, epigastric pain and backache, usually not at the first, but on one of the subsequent sessions, in 38 per cent.

In one case of anacidity hydrochloric acid therapy had failed, and only when x-rays were used simultaneously, did the treatment take effect.

AMBERSON, J. B., Jr.: The Roentgenographic Pathology of Pulmonary Tuberculosis, Including Description of Tissue Changes as Revealed by Stereograms and a Critical Study of the Clinical Bearing of the Mutations of Destruction and Repair. *American Review of Tuberculosis*, March, 1921, v, No. 1, p. 1.

The author's conclusions and summary are:

In cases exhibiting roentgenoscopic evidence of progressive disease 90 per cent or more will eventually exhibit ring shadows or areas of rarefaction to be interpreted as cavitation. In about half of the cases showing destruction coincident repair (fibrosis) could be demonstrated. The rate of destruction is retarded where coincident repair is demonstrable. Established progressive destruction is as a rule, more rapid than established progressive repair. Fibrosis is recognizable as a rule, about six months after decongestive changes (clearing) have started. In a small but considerable number of cases there will be seen complete obliteration of cavitation. In 12 of this series of 13 such closure has been permanent. Complete obliteration of cavitation usually requires a longer time for accomplishment than other phases of repair except calcification. Repair is more likely to be initiated if cavitation does not exist. At the onset of repair

cavitation was demonstrable in 62 of 100 cases; of these, contraction or obliteration of cavity occurred in 44 instances. Of the 18 cases where no reduction of the size of the cavity was noted, 10 showed no evidence of fibrosis. In cases showing cavitation preceding the onset of repair, the cavities will be seen to become reduced in size in a majority of instances (75 per cent or more) if kept under observation for 15 months or more; in a few of these complete obliteration will be noted. In cases showing local destructive changes a few will manifest lessened symptoms of toxemia, but in about 90 per cent the constitutional condition will become decidedly worse or remain stationary. Constitutional symptoms will improve and body weight will be gained in almost all cases showing repair. Where there is evidence of progressive parenchymatous change or infiltration, without cavitation, the patient is most likely to lose weight. Body nutrition is not a dependable index of the changes of the pulmonary lesion unless there is progressive loss of weight. In a majority of instances progressive decrease in sputum signifies tissue repair while a progressive increase means local destruction. Where the sputum weight does not vary the chances are about equal, with slightly greater likelihood of local destruction. Most cases exhibiting destructive changes (82 per cent of this series) will have sputa persistently positive for tubercle bacilli; of the sputa that are bacilli-negative in the beginning 80 to 90 per cent or more will sooner or later become positive. A very few positives will become negative but not unless there is considerable demonstrable associated fibrosis. In this study 95 per cent of the cases showing progressive destruction sooner or later had bacilli-positive sputa, as contrasted with 61 per cent of the repair group which sooner or later became negative. In all cases where complete obliteration of cavitation was observed the constitutional condition improved, body weight increased, the sputum weight decreased, and the sputum became negative to bacilli. Hemoptysis occurred three times during the process of destruction to once in repair; in cases of destruction hemoptyses were more frequent when no associated fibrosis could be demonstrated. This article is remarkably well illustrated by roentgenoscopic pictures which rather forcibly bring out the changes discussed by the author.

C. A. SCHMID.

SCHWEITZER, B.: **Lasting Results From Irradiation of the Uterus Col- lum Carcinoma with Radio-active Substances** (Ueber Dauererfolge nach Bestrahlung des Uteruskollumcarzinoms mit Radioaktiver Substanz). *Strahlentherapie*, April, 1921, xii, H. 2, p. 501.

The author reports on the results of 41 inoperable cases of uterine carcinoma, which had considerably invaded the genitals. In 24 the neoplasm involved the vagina; in 20 it involved the parametrium on both sides; in 11 one parametrium was infiltrated, in eight the rectum, and in two the bladders were diseased. Ten patients stopped treatment, because they considered themselves healed, after cessation of the symptoms or because it was too exhausting. In 14 cases treatment was suspended, because persistent fever ensued, or improvement failed to be obtained or because the carcinoma continued to advance. One patient died of pulmonary gangrene, and there may have been a relation to the ulcerating tumor. A primary irradiation mortality must be admitted. Schaefer considered it to amount to 2.77 per cent. Four cases were uninfluenced after a series of three treatments. Thirteen were rendered primarily free of symptoms and cured, which amounts to a percentage of 32.

Fever occurred in 38 per cent. It is advisable to make blood-transfusion, where anemia occurs. Eight operable cases were treated, six of which were primarily healed, amounting to 75 per cent.

Six of the series of 13 cases resulted in death in the first year, 2 during the second, and 2 during the fourth year after treatment. One survived six, one seven years, which amounts to a percentage of 4.9.

The author considers operation followed by combined roentgen and radium treatment the advisable therapy at the present moment. He is not in favor of preceding operation by irradiation, as shrinkage of the tissues will hinder operative results.

RIEDER, W.: **Avoidance of General Symptoms, after Deep X-ray Treatment** (Vermeidung der Allgemeinerscheinungen nach Roentgentiefenbestrahlung). *Strahlentherapie*, April 20, 1921, xii, H. 2, p. 573.

Sequelae in the general symptoms during or soon after deep radio-active treatments are headache, nausea, vomiting, lassitude, fainting, and sometimes rise of temperature.

They are caused by poisonous gases in the operating room, alteration in the body cells through electric surcharge, direct poisoning by the large x-ray doses, and by irradiation of the splanchnic area. It is therefore essential to reduce the development of oxygen in the operating room as far as possible. Unprotected spark trails must be cut out. All high tension apparatus must be highly polished. The room must be high, large and airy. The ground contact, which permits surcharge to reach the floor must be perfect. High tension apparatus must be well protected. Healthy tissue must be touched as little as possible by the rays. In irradiation of the hypochondrium the splanchnic area is always touched, and these parts are most sensitive; protection must be of the best.

Large doses of laudanum-scopolamin will help to diminish these sequelæ.

The rooms must be well aired. Sometimes the above-named sequelæ will occur a few days after treatment and may then be due to detritus of the destroyed neoplasm, circulating in the system.

WEBB, T. C.: **The Treatment of Hemorrhoids by Electrolysis.** *British Medical Journal*, March 26, 1921, p. 457.

The author has obtained very satisfactory results by this treatment. The large majority of cases of internal piles which do not prolapse can be cured by applications of the high frequency vacuum tubes, aided by suppositories containing adrenalin. Electrolysis is the most certain and least painful method to use in treating intero-external hemorrhoids. No general anesthetic is required and the patient is not confined to bed, as a rule, for more than twenty-four hours at most. There is no pain or defecation after the treatment, nor reflex difficulty in emptying the bladder, and the cure, as far as the hemorrhoid treated is concerned, is permanent. The prolapsed pile is treated in the manner to be described, and the patient then left alone for from ten to fourteen days. The patient, having had the bowels thoroughly cleaned out by an aperient over night and a saline in the morning, is placed on the left side, and a large indifferent electrode, connected to the negative terminal of a source of constant current, is applied over the right buttock and hip, taking care that it is in close apposition with the skin. The pile is now painted with

a mixture of phenol, grains 30 (1.95 grams), menthol, grains 30 (1.95 grams), quinin hydrochlorid, grains 22 (1.425 grams), adrenalin, grains 1/100 (.00065 grams), which the author has found best as a "surface anesthetic" and after a minute or two it will be found that a local anesthetic can be injected into the tissue below the base of the hemorrhoid without pain, provided that a sharp fine needle be employed. He usually employs solution urea and quinin hydrochlorid (Parke, Davis & Co.). After about ten minutes the pile is completely anesthetic, though almost immediately after being painted it can be painlessly grasped with artery catch forceps to prevent its retraction. Two or three long zinc needles, or thin spears made from "slivers" of sheet zinc and soldered to flexible insulated wire, are thrust into the base of the pile parallel to its long axis, and several more into the substance of the pile. All these needles are connected to the positive pole of the source of current, and are packed round with oiled wool to prevent their causing blisters on the parts around the anus. The current is now slowly turned on till a strength equal to about 12 or 15 milliamperes per needle is reached, and is allowed to flow for ten to fifteen minutes and then gradually turned off. It will be found that the needles are quite difficult to withdraw owing to the firmness of the clot formed, and it is often well to reverse the current, making the needles negative, for a couple of minutes to facilitate withdrawal. After the treatment the pile has changed from purple red to grey. It is covered with adrenalin and pushed well up into the rectum, and a suppository of chloreton, grains 5 (.324 gram), morphin, grain 1/4 (.0162 gram), and novocain, grain 1/4 (.0162 gram) inserted. The patient is sent home with directions to go to bed for twenty-four hours, to take a dose of confection of senna and sulphur the following night and is also instructed that, should the pile prolapse, it must be replaced at once. The process by which the hemorrhoid is cured is two-fold. The vasa-vasorum are obliterated, and thus the blood supply is cut off from the walls of the vein, and at the same time a firm, closely adherent clot is formed in the lumen of the dilated portion. This treatment is not indicated in cases where the piles do not protrude, nor when they are very large.

WAKELEY, C. P. G., AND THOMSON, M. S.: **A Case of Idiopathic Multiple Pigmented Hemorrhagic Sarcoma.** *Archives of Radiology and Electrotherapeutics*, 1921, No. 249, p. 339.

A woman, 55 years old, after an attack of gout of the metatarsophalangeal joint retained an edematous ankle. The inner and outer surface of the ankle and leg were much swollen. The x-ray showed the bone to be perfectly normal. After the limb had been strapped ten days, discoloration was marked and the ankle was covered with purplish black spots, whilst the surrounding skin was of a yellowish-brown tint. Over the external malleolus there was a dark nodular mass about two inches in diameter. The edema extended up to the knee. A few nodules at the ankle were ulcerated. No telangiectases were noticed at any time. The inguinal glands were not enlarged. The Wassermann test was negative. The microscopical examination of one of the nodules led to a diagnosis of multiple idiopathic hemorrhagic sarcoma.

The x-ray treatment was carried on by dividing the area into 24 parts, each $2\frac{1}{2}$ inches square. Each section received a full pastille (Sabouraud) dose through a 3 mm. aluminium filter. A hard Coolidge tube was used at a distance of 10 inches. After a month's treatment the ulceration, edema, and discoloration disappeared.

In England the disease is rare. In Italy and among Polish and Silician Jews it is relatively common, especially among men. The cases reported in literature are usually bilateral, and may start in the hands, the disease spreading to the trunk and ending in the face being affected. The mucous membranes and internal organs become involved. A few cases of recovery have been reported. Generally the disease lasts four years, ending in marasmus and hemorrhage.

In the author's case the edema preceded the appearance of the nodules, which in the earlier part did not approach its limits or extend beyond it.

Valvular disease of the heart, cold, rheumatism and gout have been cited as predisposing. But the cause seems obscure. "Whilst the malady is certainly distinct from the true Kaposi's disease, the question as to whether or not a sarcomatosis is or is not present is still a matter of debate. McLeod, Bullock and Turnbull, all claim that microscopically the changes are primarily inflammatory. Barnhardt believes that it is a sarcoma originating in the perithelium of

the blood-vessels. Edema and vascular degeneration and hemorrhages may be the result of pressure from a tumor.

The prognosis in the arsenic treatment usually recommended, is far from good. A few cases have been improved under x-ray treatment.

HIGHMAN, W. T.: **The Modern Treatment of Acne.** *New York Medical Journal*, January 22, 1921, p. 737.

The treatment of acne is important not only because of its disfiguring effect, but from the result this has on the disposition of the patient. Young girls especially become self-conscious and even melancholy. If the trouble is not controlled early, the damage is lasting. The underlying causes of the disease are associated with the profound changes inherent in puberty. In woman the eruption often grows worse in relation to the menses. The indications for treatment are: first, the prevention of comedones formation; second, the control of the underlying factors, where this is possible. Incidental indications are the treatment of the scalp and the expression of the pustules and comedones.

The general treatment consists of regulating the diet by cutting down the starch and sugar intake and by promoting intestinal function. The latter is best accomplished by eating green vegetables and stewed fruits, together with the judicious use of cathartics, if indicated. If there should be a disturbance of the internal generative organs, a condition rarely found in the young, this should be controlled. In dieting patients, however, it is extremely important to keep up the general nutrition and weight. The most important indication in local treatment is to prevent comedones formation. If this can be accomplished, pustules will not develop and the disease will be automatically controlled, even though the predisposing causes are not, for acne cannot occur where the skin is normal and the sebaceous glands are not overactive. In former days this was done with moderate success by the use of sulphur, resorcin or salicylic acid in lotions or creams. These substances make the skin peel and tend to overcome the condition favoring acne. To-day this may be accomplished more certainly and more precisely by the use of the x-rays in given amounts. One Holzknecht unit applied to the face weekly, for

from ten to sixteen exposures, will cure the average case of acne, and if from time to time there should be recurrences, these will yield readily to two or three exposures. The *x*-rays work by diminishing the function of the skin glands and by diminishing exfoliation. Conservatively stated, nine cases out of ten can be cured in this fashion.

Thus it is possible to start treatment when acne first appears and before any real damage has been done to the skin. No local treatment is necessary. This eliminates the expense and the loss of time that the purchase and application of drugs involves. About six minutes weekly in a physician's office will accomplish more than older methods could ever do.

The cosmetic result is enhanced by skillful expression of the comedones and pustules and the incidence of recurrences is reduced by the use of mild, antiseptic lotions to the scalp. The employment of vaccines so far as the author's experience goes, promises nothing, for the pustules are purely incidental and will not develop unless comedones are present. The general treatment should not be neglected. The patient should wash the face with a rich lather twice a day and shampoo once a week with some simple soap. Green soap is contra-indicated. Recurrences take place in about one case in four, and are easy to control with two or three *x*-ray exposures. This line of treatment was unsuccessful in only 3 cases out of 50 and in one of these patients there was marked secondary anemia.

SECTION ON NEUROLOGY AND PSYCHIATRY

GARRNETT, L.: **Some Cases of Epilepsy and Their Treatment.** *Woman's Medical Journal*, May, 1921, xxviii, No. 5, p. 107.

In treatment of epilepsy the author recommends the following: Hot baths every evening and a woolen blanket pack, while ice is applied to the head. Epsom salts and pancreatin, 3 grains (.195 gram), should be given after each meal and luminal, $1\frac{1}{2}$ grains (.0974 gram) should be given at bedtime; this should be repeated in the morning, if necessary.

LAHEY, F. H., AND JORDAN, S. M.: **Basal Metabolism as an Index of Treatment in Diseases of the Thyroid.** *The Boston Medical and Surgical Journal*, April 7, 1921, clxxxiv, No. 14, p. 348.

Jordan and Lahey made 304 metabolism estimations on 135 patients. They conclude that active hyperthyroidism does not exist without an increase in the metabolic rate. Especially are such studies of great value in separating those cases of neurasthenia, such as effort syndrome, which closely simulate hyperthyroidism. These show metabolic rates within normal limits. It is further of value in determining secondary hyperthyroidism in those cases of adenoma of the thyroid in which hyperthyroid symptoms are not very prominent, for even slight degrees show demonstrable increases in metabolic activity. Correlated metabolic and clinical examinations are valuable in determining the amount of surgery to be done primarily and also in deciding when to follow the pulmonary ligation with partial thyroidectomy. They believe it is best to make metabolic determinations every two weeks during the intervals between pole ligation and

partial thyroidectomy, and that partial thyroidectomy should be performed as soon as the maximum gain indicated by drop in metabolism and pulse is made. Partial thyroidectomy, without the preliminary ligations, may be employed safely in all cases showing rates of not over +35. Those showing rates above +50 are safest when submitted to primary ligation of one or both thyroid superior poles. Extreme care must be exercised in the surgical treatment of cases showing metabolic rates above +75.

HARBITZ, F.: **The Curability of Tuberculous Meningitis.** *The American Journal of the Medical Sciences*, February, 1921, clxi, Part 2, No. 587, p. 212.

Curability depends upon the nature of the infection. Prognosis is brighter in persons who have suffered from chronic and relatively benign forms of tuberculosis. An important factor is the increased resistance on the part of the body, which bears relation to the age. Sixty per cent of all cases occur in the first two years of life and usually terminate in death. The cases recovering occurred in older children and adults.

A. T. MAYS.

BEYERMAN, W.: **The Position of Manic-depressive Psychosis in the System of Psychoses** (Schijnbare Zwakzinnigheid. Bij. Forensische Hysterie). *Nederlandsch Tijdschrift voor Geneeskunde*, June 11, 1921, lxvi, H. I, No. 24, p. 3253.

In forensic cases of hysteria it is often very difficult to arrive at a definite diagnosis, and valuation of the motives. The author reports 3 cases in which the intelligence examination brought about the diagnosis of feeble-mindedness. One of the cases was of a man 24 years of age who had been indicted for maltreating his brother-in-law and had had attacks of unconsciousness. A brother was suffering from hysterical paresis. During his detention in jail, he had been found lying on the floor with upturned eyes. After being warned and severely scolded, these attacks ceased. The Binet-Simon test showed him to be on the mental level of 6-year old child. The dif-

ferential diagnosis had lain between simulation, epilepsy and hysteria.

In a man involved in a case of murder the diagnosis was between epilepsy hysteria, schizophrenia and simulation. The Binet-Simon test showed him to be on the mental level of a child 9 years of age.

A soldier, the third patient, while on guard fired a shot at a lieutenant who a few days prior had punished him. He had been abnormal all his life, and was a funny type, drinking and playing at theaters and aiming at applause.

In these cases feeble-mindedness was diagnosed. But in reality hysteria was at the base of the characters of all three.

WHITE, W. A.: **Dementia Precox.** *Outlines of Psychiatry.* Nervous and Mental Disease Monograph Series, No. 1. Nervous and Mental Disease Publishing Co., New York and Washington, 1921, Chapter -xi, pp. 166-198.

Dementia precox is a psychosis essentially of the period of puberty and adolescence characterized by a mental deterioration tending to progress, though frequently interrupted by remissions.

Heredity plays an uncertain rôle in the etiology of dementia precox, but the disease seems to afford evidence of mendelian recessive factors. However, direct heredity is frequently in evidence, and families are found with several cases of dementia precox in them.

Of exciting causes it would seem that severe shocks, both physical and mental, are found.

In considering the mental symptoms of dementia precox, attention has been directed to the very different impression this disorder makes on the physician, as contrasted with such conditions as mania, melancholia, paranoia and amentia. The latter disorders seem to the physician to be due to the deviation of normal mental processes: one can put himself in the position of the patient. With dementia precox the effect is quite different. The awkward constrained attitude of the patient makes one feel quite out of touch with them. This fundamental difference in the impression created by dementia precox patients from that produced by other types of mental disorder has been traced to "intrapyschic ataxia."

The recognition of this ataxia, the separation of intellectual and

emotional reactions has led some to prefer the name schizophrenia to dementia precox.

This intrapsychic disturbance of coördination leads to a defect, the signs of which are much more marked in the emotional sphere than in the intellectual sphere. There is a failure of voluntary attention and a lack of interest which these patients show both in themselves and in their surroundings. Emotional deterioration is largely responsible for this indifference. The memory is usually defective especially for recent events. Knowledge acquired before the disease began, however, is often remembered with quite remarkable accuracy.

The patients often emaciate during the early stages of the disease; anorexia and insomnia are common, circulatory disturbances, rapid cardiac action and cyanosis of the extremities are often seen.

The early manifestations of dementia precox may take the form of the various types of the manic-depressive psychosis, psychasthenia, neurasthenia, and paranoid states. In all these cases a search should be made for the fundamental symptoms, particularly the emotional indifference and attention disorders.

There is very little that is distinctive in the somatic pathology of dementia precox. It has certain similarities of the organic brain disease like paresis on the one hand, and to the purely functional disorders on the other. It would seem to stand midway between the so-called organic and psychogenic psychoses.

The treatment must be entirely symptomatic. A careful search should be made in each case for functional abnormalities and for the origin of mental conflicts, and correction applied as far as possible. One of the best methods of approach to the treatment of these cases is the method of reëducation through the agency of industrial training. If this is to be done intelligently, it is essential that the patient be not merely put to work in a haphazard way, but that a sufficiently careful analysis of the psychology of his particular condition be made. One of the most hopeful methods of approach to this problem is by a study of the way in which recovery has been brought about in those cases that got spontaneously well.

Preventive measures are dependent upon the ability to recognize in the child the possibilities of a future precox. The method of procedure in such cases would be to attempt to overcome the defect present in the particular case by educational and psycho-analytic methods.

A recognition of the precoc character in the child will make it possible to save it from a number of stresses that might prove disintegrating factors. Particularly an open, healthy initiation into the mysteries and problems of sex is important, as this is the rock upon which these cases are often ship-wrecked. Protection from undue stresses and a careful education along lines of the development of self-sufficiency in the face of difficulties, with a full appreciation of the limit of strength and adjustability, is the keynote.

JELGERSMA, G.: **Feeble-mindedness in Forensic Hysteria** (De Plaats der manisch-depressive Psychose in het Systeem der Psychosen). *Nederlandsch Tijdschrift voor Geneeskunde*, May 21, 1921, lxxv, No. 21, p. 2779.

Germinal psychosis is manifest in all grades, and even normal human beings show great variation of mood, going on in some to a manic-depressive state. Everyone has somewhat of a psychogenic character. This was the opinion of the author when he wrote his text-book. He now modifies his statements. He is now of the opinion that the different grades of paranoia may merge into normal, and manic-depressive states may merge into hysteria. Not all germinal psychoses take the same course. In manic-depressive psychosis traces of hysteria or paranoia and of the different compulsion ideas may be seen. It may be hard to diagnose these cases. These psychopathic personalities are common. The intense anxiety which characterizes manic-depressive psychoses is not prevalent but the cases are chronic. Anxiety is a chronic state and becomes rather a habitual reaction toward the surroundings. This psychopathic reaction is the same as it is in oligophrenic persons. They are popularly called queer. Cyclothenic attacks are not to be considered lightly; the author has found them as remnants of manic-depressive psychosis. They constitute grades intermediate to the normal minds. In manic-depressive cases the constitution will play an important part. The author considers every emotional process as the intensity of the accompanying nervous metabolism. The happy mood is of lesser intensity than the melancholic. Manic-depressive psychosis constitutes to a high degree this nervous metabolism, but in manic melancholia it is still more intense. In some persons the normal condition amounts to a slight degree of manic-depressive psychosis.

If all people have this type of germinal psychosis in some degree this is not the case with hysteria. The suddenness of nervous short circuit is characteristic of hysteria and causes marked somatic changes. This suddenness is not so general in human processes as is the slower periodic occurrence of phenomena. This is applicable to the psychasthenia in the sudden melancholic reaction of anxiety and compulsion. The patient is not always melancholy. The main difference from those conditions which must be considered as normal is that anxiety is not primary, and that the general mental tenor is not melancholy. Paranoia shows the same short circuit as does hysteria and hallucinations.

So manic-depressive psychosis has an especial significance among the germinal psychoses, inasmuch as it may be found in some degree in all mankind. Dementia paralytica and dementia arteriosclerotica give many of the original traits of character. In all cases of paranoia the author has found the manic complex. Sometimes it is hard to distinguish between querulous mania and paranoia. In erotic and in senile paranoia the manic symptoms are marked. In hysteria the manic-depressive symptoms come on in cyclic turns. In women, hysterical and depressive conditions are often hard to differentiate. Either may be accompanied by hallucinations.

Changes from psychasthenia to hysteria and paranoia do not occur. Patients are aware of compulsion and phobia. These types of germinal psychosis are not in close relation to the general mental characteristics of the patient.

KIELEY, C. E.: **James' Theory of the Emotions in Relation to the Adrenal Glands.** *The Journal of Laboratory and Clinical Medicine*, January, 1921, vi, No. 4, p. 193.

James postulates that we cannot experience an emotion unless we also experience the physical changes that habitually accompany it. He states his postulate even so boldly as, "We are afraid because we run" rather than "We run because we are afraid". Cannon and his collaborators attempted to show that the physical concomitants of fear were produced through psychic stimulation of the adrenal gland. Accepting both theories it follows that a blocking of the adrenal hyperactivity should prevent the experience of fear. Biedel states

that there is but one known substance which neutralizes adrenal physiologically at all points. This is apocodein, a drug bearing the same relation to codein as apomorphin to morphin, but not exhibiting the same pharmacological action as apomorphin.

The two subjects selected for the tests were both psychasthenics whose most prominent symptom was fear.

The first patient's complaint was fear of death. This fear was finally shown to have its basis in her religious attitude toward her erotic desires in regard to sexual fantasies. She was a member of a religion, which teaches that to entertain sexual fantasies is as great a sin as physical indulgence and the guilty will be eternally punished. That was the psychic mechanism which determined the fear of death. She was treated with apocodein but to no avail.

The second patient's phobia was mainly that of committing suicide, which fear he dated back three months when he began to drink whiskey. He was also treated with apocodein but with no improvement.

The author concluded that granting that Cannon's contention in regard to the bodily effects of fear is correct, the two experiments presented indicated that an emotion can be experienced independently of the psychic changes which habitually accompany it.

C. M. ANDERSON.

KIRSCHBAUM, W.: **Tuberculosis of the Central Nervous System** (Ueber die Tuberculose des Zentralnervensystems). *Zeitschrift die gesamte Neurologie und Psychiatrie*, April, 1921, lxvi, 282.

Anatomically there are two types of tubercular meningeal changes. The first type is those with a diffuse infiltration, which show dense cell conglomeration without structural nodules. They become necrotic and often invade the brain. The second type forms organisms, which show similarity to tubercles, such as are disseminated through the body. It does not spread diffusely in the brain, but forms nodules, which run along the vascular tracts. Connective tissue and the fiber-forming glia resist their invasion. Usually both types are formed in the same case.

The hematogenous origin seems established for "conglomerary" tuberculosis. In the meninges a lymphogenous or hematogenous

origin of tubercular processes must be accepted. If the hematogenous origin is accepted for the diffuse type of tubercular meningitis, it is necessary to presume a secondary lymphatic infection starting from primary vascular foci. In vascular tuberculosis the perivascular lymph coverings, and their surroundings are infiltrated with nodular small cells. In these areas tubercle bacilli are numerous. The media of the arteries resist tubercular infection progressing from the adventitia. In the veins, invasion of the entire walls with round cells is rather common, but also in arteries the author has seen an invasion of polymorphonuclear leukocytes and round cells. The media often shows characteristic necrotic conditions. Panarteritis and panphelbitis is common. The intima of the brain is not often involved, but the small is sometimes changed by tubercular processes in the small meningeal arteries. There may be a defined area of intima tubercle, diffuse tubercular endarteritis, and hyalin fibrinoid changes of the media or intima or of both.

Other authors, such as Nonne, give proliferation of the endothelium, going on to giant cell formation, miliary tubercle, usually under an intact endothelium, caseous process, or simple proliferation. Cases may show arteriosclerosis and tuberculosis of the intima.

The author could not find convincing evidence of the primary genesis of the meningeal infection, neither in the hematogenous nor the lymphogen type.

WILSON, S. A.: Some Problems in Neurology. The Argyll Robertson Pupil. *Journal of Neurology and Psychopathology*, May, 1921, ii, No. 5, p. 1.

The diversity in the medical nomenclature on the symptom-complex of Argyll Robertson pupil lies in the including or eliminating of myosis as an integral part. Robertson first in 1869 found the symptom chiefly in cases of tabes dorsalis. Present-day opinion with a few exceptions, holds myosis to be facultative and not obligatory. The definition would then be an absence, or obvious diminution of the direct reflex to light. The consensual reflex is either absent or present. The pupillary reaction on convergence-accomodation is preserved. Myosis may occur without the dissociated reflex phenomenon of the Argyll Robertson pupil, and vice versa. These are some 30

per cent of Argyll Robertson pupils, which are also myotic. Vision is usually considered to be unimpaired, but cases of relative blindness may be included, which exhibit the dissociated reflex. Frequently dilatation of the affected pupil on painful stimuli from the trigeminal area is absent. Irregularity or inequality of the pupils is incidental.

The Argyll Robertson phenomenon is encountered in a high percentage of cases of neurosyphilis but cannot be taken as pathognomonic of that condition, or as an infallible index to preceding syphilis. Its occurrence of the sign in cases of nervous disease altogether independent of syphilis is less frequent. As in the toxi-infective state of syphilis, so it occasionally appears in the toxi-infective group of epidemic encephalitis. Manifestations due to the interference with the oculomotor apparatus have been reported in 53 per cent of Tilney and Howe's (Epidemic Encephalitis, New York, 1920) cases. Again the Argyll Robertson has been observed occasionally in unmistakable cases of disseminated sclerosis. It is apparent that the phenomenon is an occasional occurrence in diffuse toxi-infective states other than neurosyphilis.

The dissociated reflex as a stage toward complete fixity of the pupil accompanied certain cases of cerebral tumor in the vicinity of the third ventricle, aqueduct or anterior corpora quadrigemina. In certain cases of mesencephalic lesion, it is not constant.

Reflex iridoplegia has been described in syringomyelia or syringobulbia. Argyll Robertson pupil has been reported by Nonne (*Neurol. Centralbl.*, 1912, xxxi, 6) in diabetes mellitus. In these 2 cases repeated Wassermann tests were negative. Traumatism has been followed by the Argyll Robertson pupil.

The physical stimulus sets in action two physiological mechanisms, that of sight and that of light. Generally vision and reflex activity to light diminish *pari passu* so that in complete optic atrophies the pupils are often immobile. But exceptions are numerous and suggest an anatomical as well as the accepted physiological distinction between the two systems. "The physiological results both of stimulation and of destruction of the external geniculate body are quite different from those relating to the superior colliculi, and prove the pupillary and visual paths are not identical". The pupillomotor reflex fibers can be followed to a point just before the external geniculate body is reached, and it has been shown that except where it enters the lateral geniculate, electrical excitation contracts the pupil.

And these pupil-controlling fibers can be followed along the superior brachium and anterolateral edge of the superior colliculus. "Undoubtedly the crux of the whole question lies in the fact that the exact anatomical pathway from the anterior colliculus to the sympathetic nucleus in the oculomotor nuclear system has not yet been definitely traced, yet the difficulty resides not in poverty but in plentitude of neuronal connections."

Above, below and laterally the fibers of the colliculomotor system skirt the central grey matter of the aqueduct. They are the first to suffer from any peri-aqueductal toxic invasion.

Experimental and clinical evidence is strongly in favor of the passage of the light reflex by the superior colliculi. Some writers have, however, suggested that it occurs by the tractus peduncularis transversus, which is a fiber-system of uncertain origin and ending. Knowledge, so far, is insufficient to justify speculation as to its possible connection with the pupillomotor reflex. The tectum opticum is a reflex station of much significance in connection with light impression. The iris-constricting center is usually considered to be located in the nucleus of Edinger-Westphal. We are ignorant of the actual site of the cortical center, but since the physiological center for the oculorotary system is situated approximately at the junction of the second frontal and precentral gyri, a twin accommodation center, for convergence, instead of lateral deviation, may conceivably lie in the same vicinity, corresponding areas in the two hemispheres being physiologically associated. A single localization for the Argyll Robertson sign is not to be expected, except that clinical, experimental and pathological evidence place the lesion on the afferent side of the light-reflex arc up into the center in the third-nerve nucleus. The author considers the neighborhood of the aqueduct by far the most common site. He lays the greatest stress on the occurrence of the Argyll Robertson phenomenon in cases of tumors of the superior colliculi and third ventricle. They prove the possibility of the development of the sign from non-syphilitic processes of mesencephalic origin on the afferent side of the third nuclear group.

Peri-aqueductal degeneration is often found in disseminated sclerosis. A subependymal sclerosis all round the ventricular system is common, and one of its possible explanations is a toxic lymphogenous invasion from an infected cerebrospinal fluid. In syphilis and other infective states an ependymitis or subependymitis is no

uncommon condition. It is the granular ependymitis of parenchymatous neurosyphilis. It may be that there is a tendency for the syphilitic toxin to filter through to affect the peri-aqueductal fibers, or terminal sensory arborizations, by lymphatic or possibly by vascular routes. This will account for the Argyll Robertson pupil in syphilis as readily as does a lymphogenous invasion via dorsal roots. It may also account for the absence of the knee-jerk. The grey matter may not suffer first, as the syphilitic neurotoxin has an especial affinity for the afferent system or for afferent terminal arborizations.

The author's explanation for the early and common appearance of the Argyll Robertson pupil in neurosyphilis is an irregular spread of the toxin through subependymal tissues surrounding the aqueduct to susceptible afferent fibers or terminal dendrites. In some rarer cases the lesions may be presumably located nearer the back of the eye.

ROSENHECK, C.: **Backache Due to Neurological Conditions.** *New York Medical Journal*, Jan. 22, 1921, cxiii, No. 4, p. 138.

"An implication of the posterolateral spinal root or its ganglia is necessary to propagate the painful sensation to distant anatomical parts. A different view, however, is permissible when the dural covering alone is involved." From clinical or experimental data pathological processes here do not call forth painful sensations at a distance. Spinal meningeal affections show severe and persistent pain in the muscles of the back. In diseases of the spinal cord backache has been very often lightly treated. The author could find but two articles treating backache from a neurologic standpoint (Langdon and Neustadter). These writers built up their treatise on backache.

The standard textbooks of Starr, Gowers, Oppenheim, Osler, Dejerine, Strumpell and von Leube give the occurrence of backache at 30 per cent in neurological conditions.

In all affections of the spinal axis where a definite etiological relation can be established to hemorrhage, acute inflammatory disease and new growths backache is found as a subjective symptom. The symptom is always minor in the clinical picture, the gross motor and sensory manifestations being in the foreground.

Etiological factors in backache must be sought, in neurological affections, in morbid processes which at once affect the integrity of

the dural covering and the dorsal roots, as there are acute or subacute infections of the meninges, hemorrhage in the cord substance or its dural coverings, and neoplasms. In degenerative diseases of the spinal cord backache is significant and must be explained rather from interference with the patient's motor activities. Inflammatory processes in the dorsal roots and ganglia which manifest themselves clinically as herpes zoster will often be preceded by severe backache. Traumatic neuroses cause very severe backache. Ericksen, an older writer, considered it, in these cases, a result of inflammation of the meninges and cord; it is often the major subject symptoms. Shock to the nervous system is in the main responsible. Trauma and shock may seriously compromise the integrity of the cord and meninges. The resulting motor and sensory phenomena must be considered atomicopathological.

The pathological conditions underlying back pain vary and are determined by the underlying conditions. In rude outline they are hemorrhage, inflammatory affections and new growth. These morbid states soon affect the integrity of the dural membranes, spinal roots or ganglia. Pressure phenomena or inflammatory reactions in the spinal axis are responsible for the pathology.

The acute inflammatory diseases which are accompanied by backache are epidemic cerebrospinal meningitis, acute and chronic myelitis of the cord, Landry's paralysis, acute poliomyelitis, herpes zoster.

Backache often ushers in epidemic cerebrospinal meningitis. It often is quite prominent, the plaster-like rigidity which envelops the spinal musculature giving it its severity, which is described as boring and gnawing and of feeling as if the back would break from pain.

In acute myelitis of the cord there being an involvement of the dura mater in the inflammatory process pain in the back is prominent. It does not persist throughout the disease, it generally subsides with the paralytic phenomena. It is located at the site of the infectious process, in the cervical, dorsal or lumbosacral regions. The pain is usually of a burning nature. Some of the author's patients complained of intense paresthesia which shifted from segment to segment.

In Landry's paralysis backache is not a constant symptom.

In acute poliomyelitis of a severer type with dural involvement the pains in the back assume the character of the pain in cerebro-

spinal meningitis. They appear with or before the infection. Every movement intensifies distress; they subside when paralysis sets in. Sometimes, for instance in the epidemic of 1916, the rigidity and pain in the back persisted for months. In mild cases there is no backache.

Herpes zoster is often ushered in with severe backache. It is sharply localized near the involved posterior root and its ganglion. All pains in herpes zoster may persist a long time after the disappearance of the vesicles, and assume a neuralgic character very often.

In epi- or subdural hemorrhage of the spinal meninges there is severe pain at the site of hemorrhage. As the blood gravitates in the dural sac the pain travels downward and may involve all parts below. It will disappear when the clot is absorbed. If hemorrhage occurs in the cord substance, distention may cause backache.

Hyperemia of the cord as a cause of backache is discarded.

A great number of back pains which often suddenly incapacitate the aged may be due to temporary vascular constriction of the spinal arterial supply.

The rare possibility of vascular abnormalities must be born in mind. They will give the clinical picture of new growths with all their pressure affects.

In many cases of tumor of the cord, especially the extra-dural or intra-dural, backache may be an early subjective symptom. It may be boring, pressing, burning. The localization depends on the site of the tumor mass. Very soon the pains become diffused and of radiating character, as the neoplasm spreads and the posterior root or its ganglion are invaded. Later they are localized at the segment involved. They are severe and persistent.

In neurosyphilis the gummatous exudates act like a neuroplasm. The distress is increased by movement of the spine.

Pachymeningitis cervicalis hypertrophica acts like a neoplasm also. Radiating pain may be the very first subjective complaint whatever pathological processes invade primarily the posterior roots.

Tabes dorsalis may indicate its clinical appearance with persistent pain in the back. It is not permanent or characteristic. As there is primary radiculitis the pains early assume a distal character.

Paralysis agitans, combined sclerosis, multiple sclerosis and the various types of secondary tract degenerations may at some time during the disease be accompanied by backache.

"In traumasthenia and neurasthenia backache holds the centre of the clinical stage."

In traumatism backache follows soon after the primary effect of the injury has passed away. Pains may be diffuse or localized to the lower lumbar area.

"The backache of neurasthenia is a backache of adjectives." It may hold the patient in a mental or physical clutch.

The diagnosis and treatment are that of the underlying disorder.

INTERNATIONAL MEDICAL DIGEST

Vol. II

OCTOBER, 1921

No. 10

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	866
Section on General Medicine - - - - -	867-928
Section on Laboratory and Research - - - - -	929-950
Section on Pediatrics - - - - -	951-960
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-xxix
Index of Subjects - - - - -	xxix-lxxxiv

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1921, by W. F. Prior Company Inc.,

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYES
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE B. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

OCTOBER, 1921

No. 10

SECTION ON GENERAL MEDICINE

LINTZ, J.: **Elephantiasis with Reference to Syphilis.** *New York Medical Journal*, April 6, 1921.

Elephantiasis has been defined as a "progressive histopathological state or condition which is characterized by a chronic inflammatory fibromatosis or hypertrophy of the hypodermal and dermal connective tissue which is preceded by and associated with lymphatic and venous stasis, and may be caused by any obstruction or mechanical interference with the return flow of the lymphatic and venous currents in the affected part (Matas, R.: Surgical treatment of elephantiasis and elephantoid states dependent upon chronic obstruction of the lymphatic and venous channels. *Amer. Jour. Trop. Dis. and Preventive Med.*, July, 1913, i, 60). Elephantiasis is considered as non-filarial and filarial. The nonfilarial type is caused by mechanical obstruction, such as carcinomatous or tuberculous masses, or following operative interference with lymphatic drainage after extirpation of axillary nodes for mammary carcinoma. Matas (Remarks on elephantiasis in the South. *Trans. Southern Surgical and Gynecological Assn.*, 1911, p. 426) and Prout (On the rôle of filaria in the production of disease. *J. of Trop. Med. and Hygiene*, 1908, xi, 109; and Discussion of elephantiasis. *Brit. Med. Jour.*, 1908, iii, 1363) and others have insisted that mechanical obstruction alone is not sufficient to produce elephantiasis; that with the obstruction infection must be superimposed, a general streptococcus reticular lymphangitis. They considered elephantiasis as a subacute or chronic recurring erysipelas, generally at first with fever which becomes less in sub-

sequent attacks, and the condition is called elephantiasis streptogenes. When, however, no evidence of direct, mechanical agency can be shown, and when no direct source of infection can be found in the affected part the elephantiasis is invariably called filarial in origin. Stitt (*Diagnosis and treatment of tropical diseases*, Phila., 1917, second edition, p. 314) states, "It is now well established that patients with elephantiasis rarely show embryos in the peripheral circulation, and this fact should be better understood because there is a tendency to negative a filarial diagnosis when embryos are about from the peripheral circulation." This etiological view of elephantiasis is reflected in the prognosis and therapy. Thus Mauseon (*Filaria Sanguinis Hominis*, Lond., 1883, p. 80) states, "The impossibility of permanent and thorough cure of elephantiasis is apparent; much may be done by the knife to remove deformity, and elastic bandaging and other devices for aiding the lymphatics still patent and the blood-vessels to carry off stagnant fluid; but permanent cure of the established disease is impossible. Stitt also says, "It may be stated, however, that salvarsan, arsenophenylglycin and other similar remedies have been without special effect in destroying the filarial worms. There is not a large number of cases of nonfilarial elephantiasis associated with syphilis. Webb (*Elephantiasis Orientalis*, *Indian Annals of Med. Sci.*, 1855, iv, 619) suggested syphilis as a cause in elephantiasis of the penis and scrotum. In 1880 Klotz (*Elephantiasis*, *N. Y. Med. Jour.*, 1880, xxxi, 306) presented a case of elephantiasis of a foot and leg of seven years' standing in a woman aged fifty-eight, with deep ulcers which were strongly suggestive of syphilis and which improved with the internal use of corrosive sublimate. Frances (*Cases of Elephantiasis Associated with Tertiary Syphilis*, *Brit. Jour. Dermat.*, 1894, vi, 225) declared it not uncommon to have tertiary ulceration of leg accompanied by edema of foot. He said that in many instances this edema is transient and disappears under treatment; in others the lymphatic edema passes into a condition of true elephantiasis with its typical features well marked. The author here reports three cases. They were of unilateral enlargement of a leg showing a history and evidence of syphilis. In the first of these cases the enlargement was of two years' standing and was accompanied by a nonpitting thickening of the skin; it could definitely be called elephantiasis. The latter two cases were of shorter duration and might be regarded as early ex-

amples of the same condition. The two patients examined for microfilaria showed none.

Of the 2 patients undergoing syphilitic treatment, the slow but marked improvement would make one anticipate the ultimate cure as certain. No dropsy was attempted. A fairly comprehensive examination of the English and American literature has brought forth several cases of elephantiasis reported as due to syphilis and in very few of these are the results of purely antisiphilitic treatment given.

STROTHER, W. H.: **Elephantiasis.** *Kentucky Medical Journal*, April, 1921, p. 175

Elephantiasis is an hypertrophy of the skin and subcutaneous tissues produced by local circulatory disturbances. It involves the skin and underlying tissue and is confined to a member or region of the body. The characteristic change of elephantiasis is an enlargement; if occurring in the extremities, the skin becomes hard and sclerotic. There may be, in addition, papillary hypertrophy, particularly on the leg and foot, producing wasty growth of the tissues. This may be unaccompanied by marked changes in the epithelium, but there is usually also epithelial overgrowth with the production of roughened horny, verruca skin, at least fissures, eczema, or even ulcers. In the legs the symptoms are especially marked, gravity playing an important part.

The author's patient was a negro, 45 years old, who had had syphilis when he was twenty.

In June, 1917, he had attacks of chills and fever, which left him weak. His feet began to swell, and seven months later they burst, discharging much serous fluid. There was much ulceration. He had heart trouble, and albumen. Both legs were amputated above the knee. He died after a hemorrhage on the eighth day.

LAHM, W.: **Congenital Etiology of Salpingitis Isthmica Nodosa** (Die kongenitale aetiologie der salpingitis isthmica nodosa.) *Zentralblatt fur Gynaekologie*, 1921, xlv, No. 4, 133.

Chiari and Schauta thought this disease was of gonorrheal origin, because there were signs of acute and chronic gonorrhea in most of

the cases, aside from the general inflammatory symptoms. Schauta considered them cases of salpingitis, Chiari of muscular hypertrophy as fibroma or myoma. Contrary to most diseases of the adnexæ, it is usually one-sided. The fibroma were mostly found closed. Von Recklinghausen places these conditions with adenomyoma of the uterus and horn among those which have reference to the Wolffian body. The author is also of the opinion that this type of salpingitis is of congenital origin.

HARRIS, J. A., AND BENEDICT, F. G.: **The Variation and Statistical Constants of Basal Metabolism in Men.** *Journal of Biological Chemistry*, 1921, xli, 257-279.

The following are the coefficients of variation for the averages of the daily basal metabolism constants for the individual subjects.

	Men	Women
Total calories per 24 hrs.....	12.54	11.50
Calories per kg. per 24 hrs.....	9.36	* 14.14
Calories per sq. in. per 24 hrs.....	8.05	9.17

These results indicate a rather wide variability in basal metabolism from individual to individual, even when heat production is corrected for body size by expressing it in calories per sq. in. of body surface areas. The constants given here show that practically it is immaterial whether the population means are calculated from the averages of the individual subjects, from the averages weighted with the numbers of days, or with the square root of the number of days, or whether they are determined directly from the daily observations. The constants deduced from the minimum values of the daily metabolism show that if an absolute minimum, *i. e.* the one single day with the lowest average of metabolism measurements for each individual is adopted, the constants for a population will depend to a considerable extent upon the number of days observation for each individual. The variability in the metabolism of individual is positively correlated with the duration of the period of time over which the observations have been distributed. This indicates not merely that the metabolism of the individual under the standard conditions for basal de-

terminations is variable but that the amount of the variation bears a measurable relation to the length of time over which the observations extend. It is evident that the metabolism of the "normal" subject is not constant even with practically constant body mass but is to some extent in a state of flux.

STATISTICAL CONSTANTS FOR BASAL METABOLISM AS DETERMINED
FROM THE MINIMUM DAILY MEAN FOR EACH OF 136 MEN

Total calories per 24 hrs.			
	Mean	Standard Deviation	Coef. of varia- tion
Un- weighted	1,585 +11.90	205.65 +8.41	12.97
Calories per kg.			
	Mean	Standard Deviation	Coef. of varia- tion
Un- weighted	24.947 +0.139	2.407 +0.098	9.65
Calories per sq. in.			
	Mean	Standard Deviation	Coef. of varia- tion
Un- weighted	898.926 +3.9	68.87 +2.817	7.66

MEANS, J. H., AND WOODWELL, M. N.: Remarks on Standards for Normal Basal Metabolism. *Archives of Internal Medicine*, 1921, xxvii, 608-619.

In direct calorimetry, as a result of the pioneer work of DuBois and his collaborators (DuBois, E. F. et al: Series of papers on Clini-

cal Calorimetry, beginning *Arch Int. Med.*, July, 1915, xv, 793) has become generally adopted in the last two or three years, in this country at least, as a routine method of laboratory diagnosis in certain diseases, especially in those of the ductless glands. As a functional test of the thyroid gland, the level of the basal metabolism is being determined at the present time in many clinics. The methods for predicting the basal metabolism of normal persons are the body surface law, the history of which is very completely covered in the recent monograph of Harris and Benedict (*Carnegie Institution of Washington Publication*, No. 279, 1919). Other writers on this subject are Benedict (*Boston M. & S. J.*, 1915, clxxxii, 243), G. Dreyer,

COMPARISON OF PREDICTION METHODS. DATA ON OBESE PERSONS

Subject	Age, Years	Height, Cm.	Weight, Kg.	Total calories per hr.					Per Cent. Deviation Observed from Predicted			
				Observed	Predicted				Du Bois Height Weight Formula	Du Bois Linear Formula	Harris- Benedict	Dreyer
					Du Bois Height Weight Formula	Du Bois Linear Formula	Harris- Benedict	Dreyer				
Mrs. B.	44	163.0	179.0	104.4	94.3	106.2	102.6	94.5	+11.5	-1.7	+1.7	+10.3
Mrs. McK.	48	144.5	103.0	64.7	68.4	70.6	70.1	70.8	-5.3	-8.4	-7.7	-8.7
Mrs. L. L.	36	163.5	142.6	91.0	86.9	100.7	89.7	86.6	+4.7	-9.6	+1.4	+5.1
Mrs. McI.	46	157.5	127.0	84.2	79.6	82.4	81.1	79.1	+5.8	+2.2	+3.9	+6.5
Mrs. Sha	30	155.0	110.2	75.3	74.8	79.6	77.3	78.0	+0.8	-5.2	-2.6	-3.4
Mrs. F.	53	165.0	141.0	88.0	83.3	90.3	85.9	81.1	+5.6	-2.6	+2.4	+5.1

(*Lancet*, 1920, i, 289), W. M. Boothby, and I. Sandford (Basal Metabolic Rate Determinations. Philadelphia, W. B. Saunders Co. 1920), and J. H. Means (*Proc. Soc. Exper. Biol. and Med.*, 1914, xii, 13;

J. M. Research, 1915, xxxii, 121; *Arch. Int. Med.*, July, 1916, xvii, 704). The accuracy of prediction of the basal metabolism of normal men by the DuBois height-weight surface area method, by the Harris-Benedict multiple prediction tables, and by the Dreyer body weight formula, have been compared. It was concluded that the average duration tended to run about two points or more lower than either of the others. The DuBois method is the one in common use to-day. The same study was made in a series of six obese subjects. The Harris-Benedict method gave a slightly closer prediction than the other two. In general, however, the deviation by all three methods were within what may be considered a normal limit of variation in all of the six subjects. This furnishes confirmation of the conclusion that there is no fundamental change in basal metabolism in simple obesity.

In abnormal subjects, patients with hypothyroidism or hyperthyroidism, for example, it was found that the deviations by the three methods were essentially parallel. The patients presented chiefly cases of myxedema with subnormal and cases of toxic goiters with supernormal metabolism.

STRUBELL, A.: Specific Prophylaxis and Therapy of Tuberculosis
(Ueber Spezifische Prophylaxe und Therapie der Tuberkulose).
Allgemeine medizinische Centralblatt Zeitung, 1921, xc, 19, 26.

Marigliano uses dead tubercle bacilli which are however somewhat changed (containing unliberated substances—causing fever as it contains the Z-component of Deycke-Much). Friedmann wished to find an avirulent atoxic bacillus, which would not be changed in its finest molecular constituents. The author on the other hand thinks that it ought to be a bacillus, which has all specificity, and would be highly virulent, and severely toxic, and which was changed in its minute molecular constituents. The substance used ought to be made of genuine dead tubercle bacilli of a high virulence. Vaccine must have a certain age. Marigliano's preparation is a long process. The problem is not purely biological but biochemical. Haupt opened up human tubercle bacilli, according to Deycke-Much, in lactic acid. He injected it into healthy guinea pigs, 2 c. c. (32.4 minims) intramuscularly and intraperitoneally. The animals then received 0.1

gram (1/6 grain) moist liberated tubercle bacilli (a guinea pig weighs only 250 gram [.67 lbs.]). This dosis in comparison to that used therapeutically is 24,000 times higher. Friedmann does not give his doses in milligrams. Schroeder-Schoernberg shows that the living avirulent cold-blood animal bacilli Friedmann's again become virulent in the guinea pig. Robert Koch used chemically uninfluenced, simply dead tubercle bacilli. They often caused abscess. Marigliano's preparation would often cause an open wound.

WILKINSON, W. C.: **The Search for a Specific Treatment of Tuberculosis.** *British Medical Journal*, Feb., 1921, 307.

Henry Spahlinger, a Swiss bacteriologist has devised a treatment for pulmonary tuberculosis. This treatment consists of a series of intramuscular injections of a combination of tuberculous antigens and of ferments, and that this "specific" treatment was combined with an "auxiliary" treatment composed of ferments associated with lipoids, which were administered either intramuscularly or intravenously. A number of cases were treated at the City of London Hospital for diseases of the chest: how many were treated or how many survive is not stated. A note from M. d'Arsonval states that the material used consists of antigens and ferments obtained from the tubercle bacilli. The antigens are separately inoculated in increasing doses, according to a fixed scale, so that at the end of several months an injection of all the components of the bacillary bodies is made. There have been interesting and permanent recoveries after the use of this specific. Dr. Wilkinson assumes the treatment to be in the nature of a tuberculin. The method is based on the principle of active immunization by means of the products of the specific tubercle bacillus, and his remedy is therefore specific. The author has been using the same method for thirty years and has patients at present at work, who have not been treated since 1912, 1913, and 1914.

STAROBINSKY.: **Kola Addiction.** *Revue medicale de la Suisse Romande*, April, 1921, xli, 4.

The author describes a case of this malady in a woman of 57, whose mother took the drug steadily for 25 years and died at the age

of 73, three days after breaking off the habit. The patient herself has been taking kola for 15 years and could not work without it. The author classes this with nicotinism as a "benign addiction". The chief menace is in the lowered nutrition and the permanent hypertension.

MARTIN, W.: Tuberculosis of the Lymphatic Vessels of the Leg and the Second Metacarpal Bone. Secondary Elephantiasis. *Surgical Clinics of North America*, 1921, 1, 473-480.

The patient is a male Italian, seventeen years old. When four years old a small soft swelling was noticed near the base of the second toe of the right foot. This was opened. The incision did not heal; it continued to discharge small amounts of cheesy, purulent material. In the course of the next ten years similar swellings, following a similar course, appeared between each of the toes of the foot. The ankle gradually became swollen, and about three years ago the leg began to enlarge. A row of soft nodules formed, softened, burst through the skin or were opened on the dorsum of the foot, on the inner side of the ankle, and in a number of places along the leg, and finally in the popliteal fossa. From time to time the leg and foot became much swollen and red. During these attacks he had fever, lost his appetite and felt sick. The discharge from his leg has varied; at times it is semipurulent, at other times it is very thin and profuse. The previous diagnosis had been chronic osteomyelitis. The examination was negative except for the right leg; no lesion of the lungs, bones or joints was detected. The inguinal lymph glands were slightly enlarged; several could be felt about 1 cm. (.4 in.) in their longest diameter. The leg from the knee down was greatly enlarged. The dorsum of the foot and ankle was swollen and cushion-like. The swelling did not pit on pressure; it was rather firm and elastic. There were a number of small ulcerating areas between the toes, on the dorsum of the foot, and along the back of the leg; and there was a sinus in the middle of the popliteal fossa. On close examination these ulcerating areas had undermined livid edges, and the base was formed by watery, boggy granulations; a thin, cheesy pus was oozing from some; on others the secretion had dried into a brownish yellow crust. On lifting up one of these

crusts a thicker secretion could be seen exuding from the ulcerating surface. The knee-joint movement was free up to nearly complete extension, then there was a somewhat yielding limitation of motion. He had been holding his leg slightly flexed ever since the opening of the sinus in the popliteal fossa. A probe passed gently into any one of these granulating areas demonstrated not only the overhanging skin borders, but found its way readily into a long sinus, extending apparently beneath the skin. X-ray plates made of the foot, leg and thigh showed no lesion of the bones. The appearance of the small ulcerations and broken-down nodules, their curious linear arrangement in the long axis of the leg, the fact that the probe passed in each instance, subcutaneously not into the deeper tissues, and the obvious interference with the lymphatics making the elephantiasis-like swelling of the leg, made one think of tuberculous lymphangitis. A small piece removed from the margin of one of the ulcers was examined microscopically and showed the typical lesion of tuberculosis. Four toes were removed. The subcutaneous tracts were far more extensive than first supposed. His right hand next became affected. The author here describes amputation of the thigh. The wound healed except for two small ulcers which will probably heal readily after cauterization. The patient gained fifteen pounds after operation. Next the hand was operated upon. Altho tuberculosis of the lymph glands is so common, and altho tuberculosis of the lymphatics in the lung and in the mesentery is well known, this lesion is a very unusual one. Possibly it is due to some special way in which inoculation occurs, possibly, to a secondary infection and consequent obliteration of the lymph vessels which made the walls vulnerable and easily affected. It is interesting that during fourteen years the lesion was confined to one extremity; then it finally reached the blood stream and caused a metastatic lesion. The patient could have been readily cured of his disease in the beginning. Simple excision of the original focus or of the early secondary foci would have sufficed. Simple incision almost invariably leads to secondary infection and advances rather than retards local disease. The original plan had been to get the leg free enough from secondary infection to be able to excise the entire tuberculous tract with the deep fascia, doing as it were a Kondoleon operation and at the same time removing the diseased tissue. The extent of the secondary infection and the metastasis led to abandonment of the idea.

RIESMAN, D.: **Phlebitis and Thrombosis.** *Medical Clinics of North America*, Jan., 1921, 1005-1015.

The patient, a man of 37 years, has had lobar pneumonia. Two weeks after the crisis, there was pain in the left leg and it began to swell. It is very tense and tender. This is a phlebitis. Phlebitis as a pathologic process is closely related to thrombosis. There are two principal theories of the blood-clotting which underlie thrombus formation—that of Morawitz and that of Howell. Both theories agree that the fibrin is derived from fibrinogen through the action of thrombin. The fundamental fact of Morawitz's theory, is that kinase is necessary for the union of the calcium with prothrombin,—a fact, however, which is challenged by Howell, who states that prothrombin may be converted to thrombin by the action of calcium ions alone. Thrombosis is usually defined as the clotting of the blood during life in the heart or vessels. The product is not always a clot, but often merely an agglutination. These clots may form in the heart, arteries, in the veins and in capillaries. In the patient, it is the veins of the lower extremity: in that respect his case obeys the rule, even in the side affected, for the largest number occur in the left leg.

Puerperal thrombosis, also known as phlegmasia alba dolens, is a well-known complication of the puerperal state, usually unilateral, and unquestionably due to infection of a mild character. The author mentions a case,—man who had had peritonitis was seized with a frightful pain in the left leg which swelled up to great size. The skin was tense and glazed. The autopsy showed a clot in the veins, and nothing in the arteries. The first essential in treating thrombophlebitis (puerperal is included) is to avoid all unnecessary handling, all rubbing or massage. The limb must be kept at rest, elevated on a pillow, and wrapped in lambs wool or cotton batting, held on with a loose bandage. The limb should be protected from the weight of the covers by a so-called cradle, easily made from a barrel-hoop. A pad should be kept under the heel. If the pain is severe, lead-water and laudanum, saturated solution of magnesium sulphate, or kaolin paste should be applied; it may be necessary to give morphin. The bowels must be kept open and the treatment required for the general condition carried out. Ribbert, a noted pathologist, believes that thrombophlebitis may be benefited by the anticoagulant sodium

citrate. The dose is from 1 to 2 grams (15.43 to 30.86 grains) three times a day. As in medical cases one cannot foretell the on-coming of the condition, the use of the drug is hardly practical, although if there is evidence of extension of an existing process, it may be entirely proper to employ it. Chantemesse recommends the use of from 15 to 18 grams (231.48 to 277.78 grains) of citric acid for two or three days before operations to prevent postoperative thrombosis. After the acute symptoms are over the patient should wear an elastic bandage, preferably of cotton, or a rubber or laced stocking. Massage is contraindicated in the early stages, but later may be of benefit.

THANDAVAROYAN, V. D.: **Gangrene Due to Carbon Monoxid Poisoning.** *Lancet*, April 30, 1921, cc, No. 5096, p. 910.

This is the second case the author reports, the first being published in the *Lancet* on Sept. 27, 1919. In this second case a charcoal stove was put in a sick room. There were three adults and three children sleeping in this room, and the doors and windows were closed. Two in the morning were giddy, the sick child was dead, the other two children semiconscious and the man unconscious. He regained consciousness only for twenty-four hours in the hospital. There were areas of hyperemia which were confined entirely to the left side. The face, left hand, part of chest and left thigh were affected. The hyperemia disappeared on face and chest, but anesthetic areas appeared on left hand and left thigh. Four days later the little finger of the left hand was found gangrenous, of the dry type.

LUDEX, G.: **Chronic Carbon Monoxid Poisoning. Its Immediate and Subsequent Manifestations.** *Modern Medicine*, 1921, iii, 167-170.

Even slightly gassed patients should be watched constantly. "One can never be sure that an individual who is apparently only slightly affected will not pass into the second (syncope) or into the third stage (apnea) very suddenly, and without premonitory symptoms (McCombs: Clinical manifestations of illuminating gas poisoning. *Am. Jour. Med. Sci.*, 1912, cxliv, 577)." No patient suffering from car-

bon monoxid poisoning should be taken suddenly into cold air because there is eminent danger of collapse and violent exercise should be avoided. Subcutaneous injections of camphorated oil give immediate relief from the sensation of respiratory and cardiac depression, even when these symptoms are mild. Calcium lactate, 15 grains (.972 gram) three times a day, reduces the severity and the duration of the attacks of shivering. Inhalation of oxygen mixed with from 6 to 10 per cent carbon dioxid, recommended by Henderson and Haggard is likely to be of great value. In cases of emergency it might be administered by a pulmotor (The elimination of carbon monoxid from the blood after a dangerous degree of asphyxiation and a therapy for accelerating the elimination. *Jour. Pharmacol and Exper. Therap.*, 1920, xvi, 11). Organotherapy, dessicated total adrenal or total pituitary by mouth proved valuable to combat the after effects in the author's experience. The dosage must be regulated according to the needs of the individual patient. Digitalis and tincture of Strophanthus also proved valuable in small doses; Sajous ascribes their beneficial effect to stimulation of the adrenal system. The after-effects of carbon monoxid poisoning coincide with the manifestations of temporary adrenal exhaustion, shown by the muscular weakness, circulatory weakness, and general asthenia. Carbon monoxid does not destroy the red corpuscles, as is still believed by many physicians and even taught in modern text-books (Mohler, H. K.: The intoxications; and DaCosta, J. C., Jr.: Handbook of medical treatment. Philadelphia, F. A. Davis Co., 1919, 427.)

ZALISKY AND BROWN: Accidental Injuries from Electric Currents. *U. S. Naval Medical Bulletin*, April, 1921, xv, 279-281.

Death from electric shock occurs under widely varying conditions. In general high pressure currents are more dangerous than those of low pressures, however, it is not a matter of pressure alone, for death often results from currents of low pressure and many cases are on record where contacts with high pressure currents have been sustained without severe injury. Low pressure currents cause death by paralysis of the heart (fibrillar contraction), while currents of high pressure kill by inhibition of the respiratory center. It is quite

likely that currents of high voltage may be so changed by the condition of the contacts that they produce the effect of low voltage currents. Of equal importance with the amount of the current in determining the physical effects is the site, type, area, and duration of contact. If the heart is traversed by the current or the brain and spinal cord in contact, the effect of the current would of course, be more dangerous. The body is extremely resistant to an electrical current, but this resistance is greatly lowered when the clothing and skin are wet, increasing proportionately the strength of the current. An instantaneous contact with a high pressure contact may be encountered without serious result, but a fatal result would ensue if the contact is of several seconds' duration. It is in these cases of instantaneous contact or contacts of only a few seconds duration with high or medium pressure current, that results from artificial respiration may be expected, as currents of these types cause suspension of respiration, the heart often continuing to beat. In all cases of severe injury, even where death has apparently occurred, artificial respiration should be diligently maintained, with the tongue drawn out and the jaw pushed forward, as in drowning cases. It is also advisable to give adrenalin, atropin, or strychnin.

STEJSKAL, K.: Intravenous Therapy and the Effect of Hypertonic Solutions Administered Intravenously (Ueber intravenöse Therapie und die Wirkung intravenös verabreichter hypertotonischer Lösungen.) *Wiener klinische Wochenschrift*, Jan., 1921, xxxiv, No. 4, p. 34.

Three years ago Bucdinger had recommended treatment of disturbance of nutrition in the heart muscle by 12.5 per cent saccharose solution. The author tried it, injecting it into the brachial vein. He observed sclerosis of the skin the next day. Saline injection disappeared from under the skin within 20 hours. The author does not think that it is a case of drying out of the mucous membrane, but that there is a continuation of several days of an acceleration of resorption in a centripetal direction, and a diminution of the centrifugal excretion. Ewar Bang's observation of the disappearance of the sugar from the blood within 30 minutes, is not explained. The same effect as from intravenous saccharin injections is produced by

intravenous injections of 20 c. c. of a 20 per cent saline solution, or still more of the same amount and proportion of urea solution. However, saccharose is preferable as it does not surcharge the blood with material which it is difficult to eliminate. The author has then used a saccharose solution of 45 c. c. of 25 per cent, and injected it slowly into the cubital vein. He has, in 50 cases, never seen any mal-effects; there were no chills nor glycosuria. In very sensitive patients there was a slight rise of temperature, as far as 37.5° C. (99.5° F.)

Contraindications.—Glycosuria and arteriosclerosis with cerebral symptoms. It has been used in pulmonary edema, and inflammatory pulmonary edema, which in one case was associated with cardiac weakness. This patient died. Ellinger, with good success, used a Ringer saccharose solution of 50 per cent in Catarrhus pituitous Lamner and in animals for phosgene poisoning.

DA COSTA, J. C.: **Paget's Disease of the Bone.** *Surgical Clinics of North America*, Feb., 1921, i, No. 1.

The patient is a colored woman, aged 52, born in Pennsylvania, her father died of heart disease, and her mother died of Bright's disease; one sister and two brothers are living and well. Occupation, lace worker. Menses ceased six years ago. Had no special diseases other than the ordinary diseases of childhood, and inflammatory rheumatism. Never had any venereal disease, no miscarriages, one child living, age 25, who is in good health. Six years ago she commenced to suffer from pains in back and aching in bones of both legs, which condition brought her into the hospital. (None of her forebears suffered from anything similar). She has pain when walking or lying down particularly bad just below the knees; all muscles feel tired constantly, and are weak and exhausted quickly. She has no pains in arms.

Examination.—This shows cervicodorsal cyphosis, head obviously enlarged, symmetrical and bony, shaped like a triangle base at calvarium, apex at point of chin. The bones of the face show no enlargement. The chest is deformed by curving of the ribs. The bones of the legs, especially left, are felt to be enlarged, as well as the bones of the forearm.

Laboratory shows Wassermann is negative, blood shows a moder-

ate anemia, otherwise normal; urine is normal; heart also, and the temperature are normal.

X-ray shows typical bone changes in skull, humeri, bones of both fore arms, both femora, pelvis, lumbar and dorsal spine and the tibiae.

Diagnosis.—From character of bone findings alone shows that strange disease described by Paget in 1876, osteitis deformans—(over 250 of these cases have been of the bones). The original diagnosis is usually rheumatism. In many cases the disease is never recognized. He cites that Coppez found 4 cases while working in an eye clinic. Many observers regard it as a chronic bone inflammation. Certain it is that it is neither neoplastic nor hypertrophic. Early the bones are so soft they can be cut with a knife; later they may become quite hard. The marrow space is invaded and may be quite obliterated. Von Recklinghausen thinks that osteomalacia is the first stage, and that the bones bend because of their softening and thinning, inflammation arising and causing fibrous tissue formation.

Metabolic changes are noted by Hawk, colleague of author, thus:—Pronounced retention of calcium, magnesium and phosphorus, and a great elimination of sulphur. This may be explained by the new bone formation in which a high sulphur content may be squeezed out and replaced by calcium, magnesium and phosphorus. (This is the reverse of what is found in osteomalacia).

Treatment is of symptomatic character; the disease is apparently incurable; iodids in some cases seem to have lessened the pains. Trephining in case of pains in the long bones has been tried with relief. Several Italian scientists claim to have found a diplococcus in the bone, and prepared a vaccine therefrom. They claim to have proved it serviceable. The author tried to find the diplococcus in 2 of his cases, with pieces of bone from the tibiae, but failed to discover any.

Pathology is taken up thus:—the first action of the disease is bone absorption which causes the enlargement of the Haversian canals. Next new osteoid tissue is formed. In many cases there is marked arteriosclerosis, and the nutrient arteries are diseased. Locke calls it a double process. Later new bone is deposited from the periosteum chiefly to a lesser degree from the medulla. The probable theory is that increase, absence or alteration of the secretion of one or

more of the ductless glands is responsible for the metabolic changes found in this disease of pituitary in acromegaly, and bone lesions in cretinism. Fractures when they do occur, undergo satisfactory repair. There is a strong tendency to sarcoma (in 159 cases, 15 showed multiple sarcoma). Kolisko considers fibrous osteitis and Paget's disease of the bone identical because in both the bone marrow is transformed into fibrous tissue and in both there may be retrogressive changes forming bone cysts or resulting in giant-celled sarcoma. Another fact brought out is that the changes are never osteoarthritic, although that disease may accompany osteitis deformans. The process is progressive; beginning in one part of a bone it comes to involve the entire bone, other bones, and eventually the whole skeleton. Though the process may be limited to one bone, or even a part of a bone that is the exception.

BENTIN: Peritonitis: Ether Therapy and Prophylaxis (Die Aethertherapie und Prophylaxe der Peritonitis.) *Medizinische Klinik*, Jan. 30, 1921, xvii, 121.

Peritonitis leads to mortality in from 40 to 85 per cent of cases. Gonorrhoe and tubercular peritonitis is not so frequent. At all events the treatment of peritonitis is very unsatisfactory. It is necessary to establish favorable circulatory conditions, and to evacuate the pus by laparotomy. The views on further treatment differ widely. Loewy and Richter have made injections of specimen; Meikulicy of nucleic acid; Petit and Federmann of horse serum; Brumm, Fomme and Polano of antistreptococcal serum; Gliumm, Hochne, Pfannenstiel of camphor oil; Exner and Freitag made lavage with adrenalin solution; Klotz of hypophyseal extract.

Operation must be made as early as possible. Koblanck considers every attempt fruitless, which is made after the third day. Thirty per cent of patients operated upon on the first day were healed; 19 per cent of those operated on the second day; and 7 per cent of those on the third. Puerperal peritonitis is usually diffuse. Of 70 cases of peritonitis only 10 were located in the pelvis. Septic peritonitis is almost always inevitable. Fromme reports 55 per cent recoveries in cases taken from literature. Complications arising from perforation, injuries, and tissue destruction render prognosis

more unfavorable. The condition of the body, virulence of the pathogenic agent, streptococci or staphylococci all influence the course.

The author used ether. This is a method first used by the French,—Temous, Souligoux, then by Derganz, Sigwart, and Wolfsohn. He makes a median incision, and lateral incision in the Cavum Douglassi and vagina. Rubber drains were inserted, and the wounds closed. Through the drain tubes 200 grams of ether, such as is used for anesthesia were poured by means of a funnel. Derganz used to mop out some of the ether; the author does not do it. Directly after the operation an infusion of saline-adrenalin is made and caffein-camphor-digalin given. The patient is kept warm. Drop clysmas are made into the rectum.

MACEachern, J. S.: **The Treatment of Diffuse Suppurative Peritonitis.** *Canadian Medical Association Journal*, Feb., 1921, xi, 100.

Cases seen early and operated on early, often give most brilliant results in the hands of different men using very diverse methods of operative treatment. Cases encountered late, when the suppuration is widespread and the toxins have produced marked vasomotor disturbance, do vary badly under any form of treatment.

Certain fundamental principles however, apply to all cases, no matter in what stage of development they are: An area of peritoneum subject to suppurative inflammation becomes a menace to the healthy adjacent or even distant parts of the peritoneal cavity by reason of the vermicular action of the enclosed intestine tending to push it about and infect all that it touches. The peristaltic activity sets in.

In the treatment of diffuse suppurative peritonitis, one has to cope with a number of conditions arising primarily from some focus, a necrotic appendix, a ruptured hollow viscus. The intestinal paresis and resulting distension, free pus in the abdomen, general toxemia, and the circulatory disturbance associated with it, and pain must be treated.

The first step in treatment is to remove or segregate the primary focus—removal of diseased appendix ruptured gall-bladder, or closure of a perforation in a hollow viscus. Operations should be made rapidly, and gently on the inflamed areas. Much of the free pus can

be removed while the actual work for removal or repair of the causative factor is in progress. This is most easily accomplished by the suction pump. Sponging often causes injury. Tube drainage should be made to the floor of the pelvis and to the site of primary cause. They should be brought to the surface through the operation wound, as through a stab wound.

The wound should not be closed too tightly. The inflamed part must be put at rest. The presence of any material in the stomach tends to produce peristalsis. It is therefore necessary to empty the stomach by lavage with warm water before the patient leaves the table. It is equally essential that nothing, not even a drop of water, be allowed to get into the stomach until sufficient time has elapsed for firm adhesions to form around collections of pus which may remain in the abdomen and safely encapsulate them. Peristalsis may also be controlled by the administration of morphin, in doses sufficient to keep pain under constant control. Opium allows the passing of flatus but lessens peristalsis. By preventing painful impulses from the peritoneum reaching the central nervous system, it minimizes the shock. In patients who have an idiosyncrasy for morphin, respiratory difficulties arise. In marked cyanosis it must be discontinued.

Usually the water supply can be given per rectum, plain water, salt solution, or soda solution. It may be desirable to add glucose, sufficient to make a 5 per cent solution, to lessen the tendency to acid intoxication, which exists in cases subjected to starvation. Mead's maltodextrose may be used in preference to glucose. The drop administration is not always well borne; it is better to administer larger quantities every few hours. It should not be given in form of an enema, but a small amount of fluid is introduced, and drained out, at once. Nutrient enemata will often leave a putrescent residue, and will render water administration more difficult.

Prognosis is clear, in the acute cases, within a few days, and all but water may be safely disregarded. Fowler's sitting position favors the downward concentration of pus; respiration is generally easier. But the position must be watched and if the patient sags, he must be put straight onto a mattress. Treatment will be continued till there is evidence that the acute inflammation has subsided, and that the purulent collections which have failed to drain away are firmly encapsulated. The signs for this are lowering of pulse rate, cleaning of the tongue, lessening of distension, disappearance of

pain and spontaneous expulsion of flatus. In some cases this may occur in a few days, in others six or seven days may be needed. Stimulants of the intestines, purgatives, hypodermic injections have no place, in the treatment of acute suppurative peritonitis, either before or after operation.

HALDANE, J. S.: **Acidosis and Alkalosis.** *British Medical Journal*, London, 1921, i, 542.

Mistakes have actually arisen in the past through taking variations in the "alkalin reserve" as in themselves an index of whether the blood is altered towards the acid or alkaline side. The author instances a case of treatment of lung-irritant gas-poisoning by administration of alkalis, in disregard of the urgent danger from anoxemia. An instance, of diminution in the carbonic acid of the blood, with consequent diminution in its "alkalin reserve" is furnished wherever increased breathing is caused by anoxemia. An instance of diminution in the "alkalin reserve" with consequent increased breathing and diminution in the carbonic acid in the blood, is afforded by any case in which acids accumulate abnormally in the blood. Acidosis and alkalosis are extremely small but also extremely important deviations from normal in the hydrogen ion concentration within the body. The available direct physical and chemical methods are still too rough to enable one to follow these deviations closely; but we can do so by the far more delicate method of observing the accompanying changes in breathing and in excretion of acid or alkali and ammonia by the kidneys.

BROCMAN, C. J.: **Hodgkin's Disease.** *West Virginia Medical Journal*, 1921, xv, 427-431.

The treatments administered in this case were neo-arsphenamin, 0.9 grain (.005 gram) given intravenously once a week, for five doses. X-ray treatments to the enlarged glands, spleen, etc., were given every ten days, and he received in all five x-ray treatments. The patient showed distinct signs of improvement. He felt and looked much better. The glands were markedly reduced over the entire body. His appetite is much better.

YATES, J. L.: **An Outline of Twelve Years Study of Hodgkin's Disease and Allied Affections.** *Wisconsin Medical Journal*, Feb., 1921, xix, 447.

Methods of treatment are clearly defined by the pathogenesis on the one hand and morbid physiology on the other. First, the portal entry must be removed. Second, the diseased tissue must be sufficiently eliminated so that the balance of power is placed permanently on the side of the individuals. Third, treatment must be continued until the infection is destroyed. Fourth, the treatment must conserve the regenerative capabilities of the entire hemopoietic system else continued existence becomes impossible. Nearly every drug from arsenic to benzol has been tried. Surgical excisions, limited to obviously diseased tissues, vaccines, sera, toxins, heliotherapy, and x-ray or radium emanations have been employed singly and in combinations. They have failed. Sometimes the patient is disease free for years—the limit being *four*.

The benefits have been but temporary. Palliation must be recommended. Tonsils are the chief offenders, and must either be treated by x-ray, or extirpated. The x-ray treatment is carried on for three weeks. The use of radium is less satisfactory. The radiation therapy should be accompanied by blood-counts.

The author has had marked improvement of results from immune serum as a routine measure. However, extirpation should be practiced first, then serum given. Splenectomy is demanded in the nodular splenic involvement type. After the treatment has been completed, much fresh air, proper diet, tonics, etc., should be given. Over three-quarters of the cases of Hodgkin's disease and pseudo-leukemia are curable.

WHEELON, H.: **The Interpretation of Blood-pressure Variations.** *New York Medical Journal*, 1921, cxiii, 505-513.

The term normal blood-pressure may be taken to imply not only average figures but also the limits of variation as recognized clinically and experimentally compatible with normal functioning of the body as a whole. The range of blood-pressure variations computible with normal economy is illustrated by readings made upon 66

normal medical students and 22 aged women. The pressure readings were made during the morning hours, 8 to 11 or at a time when the pressure was rising from its greatest diurnal depression. Figures were also obtained to show the effect of posture and exercise on the blood-pressure and the heart and respiratory rates. It was observed that marked variations in the blood-pressure are shown between the two groups as a whole and in the individuals of the same group in the various postures and following exercise. In the men a change from the horizontal to the upright position resulted in a slight rise in both the systolic and diastolic pressures, while a similar postural change in the aged resulted in a perceptible lowering of the systolic pressure unaccompanied by a diastolic variation. Among the young adults exercise resulted in a sharp rise in the minimal pressure, while in the aged exercise resulted in a sharp rise in the maximal pressure and a marked depression of the minimal pressure. The degree of exercise in the two groups was, of course, not comparable. From a practical point of view two fundamental factors may be considered directly responsible for the production of alterations in blood-pressure; first, alterations in the rate and force of the heart beat, and, second, alterations in the peripheral resistance or size of the stream bed. The structures involved in the production of these two conditions are directly under the control of a regulatory nervous mechanism, hence, clinically, we may look upon pressure variations as the result of an altered balance in this regulatory apparatus. A blood-pressure in a state of equilibrium is but sufficient to force a given amount of blood into the capillaries during a given period of time. It follows, therefore, that an accumulation of blood in the arteries and consequently an increased pressure, will occur as the result of an increased heart rate. A decrease in the rate and force of the heart when the pressure is in a state of equilibrium leads to a decreased delivery of blood to the arteries in a given unit of time. Excitation of the cardioaccelerator centers sufficiently strong to offset or diminish the activity of the cardioinhibitory centers, results in an increased cardiac rate. Such excitation may follow the reception of impulses received from the cerebrum, as in emotional states, or from the excitation of nerves in any part of the body. A decrease in the heart-rate follows an increased activity or irritability of the cardioinhibitory centers. Reflex excitation of the cardioinhibitory centers, whether from the higher or lower segments, results in an accentua-

tion of its normal function, thus checking or decreasing the heart-rate and to this extent antagonizing the cardioaccelerator centers. From this consideration of the nervous control of the heart it appears that either of the two opposing centers may be excited or depressed because of impulses delivered into them from higher or lower segments. Hence, given a stimulation, one of two possibilities may occur in the heart-rate; it will become either accelerated or depressed. The factors involved in the determination of either result are possibly to be ascribed to the habit of reflex action of the individual, the degree of resistance of the centers, the irritability of the centers, and the selection or integrative action of the nervous system as a whole. That such factors are present, is indicated in the directly opposite reactions of two individuals subjected to the same stimulus; one may faint under stress, while another is goaded to unusual muscular activity.

The physiological alterations in resistance to the flow of blood are directly dependent upon the degree of tonicity or contracture of the vascular musculature. The degree of arterial tonicity, on the other hand, may be taken as the evident manifestation of the functioning of the vasomotor apparatus, the purpose of which is to maintain a pressure throughout the arterial tree and regulate the delivery of blood to the organs irrespective of the influence of hydrostatic pressures or gravity. The vasodilator and constrictor centers like those centers regulating the heart, are open to reflex excitation either from the cerebrum (psychic states as in fear, anger, fright and sorrow) or from the excitation of afferent endings. Excitation of the vasoconstrictor centers results in an increased tonicity of the arterial walls and coincidentally a rise in blood-pressure. Relaxation of arterial tone and the consequent decrease in peripheral resistance may follow either as the result of decreased activity in the vasoconstrictor or because of heightened activity of the vasodepressor centers. While it is not possible to assume that any one factor involved in the production of blood-pressure is of greater importance than any of the others, the relative importance of the controlling nervous factors may be illustrated by experiments (reported). These lead to the conclusion that nicotine alters the blood-pressure because of its direct or indirect action on the cardioinhibitory and accelerator centers, upon the vasomotor centers, upon the cord and sympathetic ganglia, and either directly or indirectly on the adrenal bodies. Chemical factors under

which are included the products of organs of internal secretion, are known to cause alterations in the distribution of the blood either because of their action directly on the musculature of the vessels or because of their action at various points in the nervous regulatory system. The results of such chemical substances are dependent entirely upon the pharmacodynamics of the drug. For instance, sarcosine and carbonic acids in slight concentrations in the tissues cause a local vasodilatation. On the other hand, an increase in the carbon-dioxid content of the blood, resulting from a rapid metabolism, excites not only the respiratory but also the vasomotor centers. Excessive increases of the same substance result in a partial or complete paralysis of the pressure regulating mechanisms. Therapeutically many chemical substances when placed into the circulation either cause a constriction or relaxation of the arterial walls and alterations in the rate and force of the heart. In cases in which the blood-pressure is already high, the vasomotor system is especially sensitive to the action of adrenalin. Experimental evidence offers presumptive evidence that stimulatory drugs to the vasomotor apparatus or arterioles, if sufficiently repeated, may bring about a condition of elevated arterial tension. Perhaps the adrenals do play some part in the augmentation of sympathetic reactions under conditions of stress, but there is little evidence that a balanced blood-pressure requires their presence at least as far as the vasomotor apparatus is concerned. From the considerations in this article it is evident that a balanced blood-pressure depends not only upon physical properties, such as blood volume, resistance, viscosity, size of the stream bed and gravity, but also upon physiological properties which are influenced or controlled by a nervous regulatory mechanism. Such physiological factors are vascular tonicity alterations in the size of the stream bed with associated alterations in pressure, rhythmic propulsion of blood by the heart and the property of elasticity or recoil of the arterial walls following distention because of the reception of blood during the cardiac systole. A condition of hypertension, therefore, may be looked upon as a physiological result of overactive cardio-accelerator and vasopressor centers or inhibition of the cardioinhibitor and vasodepressor centers or to a decrease in the expansile power of the vascular musculature. That is, pressure may be raised by an increased heart-rate and force, a general constriction of the arterioles, or by a combination of both. Such elevation of pressure may be

transient or chronic. In most forms of transient arterial hypertension, save that following exercise which is mainly the result of an increased heart-rate, the rise in pressure appears to result because of increased peripheral resistance. A transient rise in pressure is often traceable to an increased carbon dioxid tension, or low oxygen concentration of the blood. For instance, vascular contraction from asphyxia changes following anemia of the vasomotor centers may occur during cardiac decompensation and acute cerebral compression. The elevation of pressure associated with vascular crises, especially those of the vasomotor form of paroxysmal pulmonary edema, paroxysmal dyspnea, tabetic crisis, lead poisoning and angina pectoris either may be assumed to follow as the result of pain or from an imperfect aëration or carbon dioxid increase. On the other hand it is possible that the pain is the result and not the cause of an increased pressure and cerebral anemia. In either case the primary rise of pressure is the result of an increased peripheral resistance. The transient elevations of pressure in acute nephritis, especially that involving the glomerule, uremia and eclampsia cannot be ascribed to anatomical changes in the arteries, save possibly those in the kidney. Transient elevations in general may be looked upon either as the result of reflex causes or the action of toxic substances upon both the vasomotor centers and the vascular musculature directly. Chronic hypertension is often found associated with disturbances, but kidney changes cannot be regarded as the sole direct cause of the condition. Chronic hypertension without renal disease is entirely possible. Chronically high pressures are often associated with sclerosis of the larger arteries. Arteriosclerosis, however, does not necessarily mean hypertension. A change in posture in certain individuals results in a sharp decline in the blood-pressure associated with syncope. This syncope may be looked upon as the result of cerebral anemia. Blood-pressure variations per se are not diseased conditions, but rather symptoms indicative of an altered bodily economy.

HURST: Remarks on Some Gastro-intestinal Disorders. *Canadian Medical Association Journal*, 1921, xi, 58.

The frequent complaint of flatulence and the belching of gas is familiar, but Hurst points out that only in the case of cancer with

obstruction is the production of gas in the stomach due to fermentation. In practically all other instances it is due to air swallowing. The cause is psychical and the cure is by psychotherapy. Experience has shown the correctness of this view, for simple explanation of the nature of the trouble, and the demonstration of the impossibility of its causation by gas of fermentation are usually sufficient to bring about a cure.

STROH, M.: **Clinical Factors in Varicella With Especial Reference to Blood Findings.** *Zeitschrift für Kinderheilkunde*, 1920-21, xxvi-xxvii, 120-136.

There are many contrary views in the literature concerning the prodromal appearances of varicella. Henoch and Thomas deny any prodromal symptom, especially any temperature increase as the rule, and both state that the exanthem is the first symptom in varicella. Only as exceptions, Henoch described a few cases, in which he observed before the outbreak of the pox, headache, vomiting, fever, conjunctivitis and angina. In 872 cases of varicella, Semtschenks discovered prodromal symptoms 808 times, especially fever. Gerhardt and Bohm describe some cases, in which one half to three days before the eruption of the varicella, there was loss of appetite, depression, weakness, cold, rising fever and pains in the joints. Kassowitz was able to observe a case, which began with severe convulsions, then sleep, cramps in the extremities and very high temperature. These symptoms lasted two days and disappeared with the outbreak of the varicella. Cerf (*Lesanom. et les compl. de la varicelle, Gaz. des hôp.*, 1901, Nr. 74, S. 713), has observed temperature up to 40° C. (104° F.) before the appearance of the exanthem, the fever being accompanied by nosebleeds and vomiting. Nothnagel holds that prodromal symptoms with more or less apparent fever are lacking in the slight cases but can be seen in the more severe cases.

The authors have been able to make temperature readings in the prodromal stage in 94 children. In only 13 was fever observed; twice, three days before the outbreak of the exanthem; five times, two days before and six times one day before. In only one case could they blame a rash with a sore throat for this temperature rise. This case was the only one among the children observed, in whom

the prodromal fever reached 40° C. In the other cases the temperature fluctuated between 37.5° C. and 38.5° C. (99.6° F. and 101.4° F.).

WEITZIE, L.: **Tumor of the Breast in a Young Soldier** (Tumeur du sein chez un jeune soldat). *Loire médicale*, 1921, xxxv, 16-20.

The tumor presented was removed from the breast of a young soldier of twenty years. He was examined August 25. He complained that for some time he had had rather severe pains at the level of the left breast the nipple of which is prominent, raised by a diffuse swelling of this whole region. Palpation is painful, especially at a point situated at 2 cm. (.8 in.) below the nipple where pressure shows a slight edema. No fever, no axillary ganglions. Right breast normal. No recent traumatism of the genitals; no contributing cause is revealed by the patient. This man, of good constitution, without any sign of femininity, told us that he had had similar symptoms a year ago which necessitated puncture with a bistoury by a physician and which had disappeared under local hot and moist applications. The author thought of one of the mastites observed sometimes in young soldiers and made a small puncture with a bistoury at a slightly edematous and more painful point. There was no pus, not even serous fluid. Local hot moist applications for several days. The spontaneous pains decreased, the swelling disappeared and palpation disclosed a little rounded, hard, regular, nodule in the deeper planes, covered by normal skin and situated directly behind the nipple, and of which the author advised ablation. The patient however, refused and was not seen until toward the beginning of October. The pains had reappeared, the tumor had increased in size to the size of a small mandarine with the same mobility as before and without axillary ganglions. The patient asked that the tumor be removed. Operation, October 8. General anesthesia under ether. The breast was circumscribed by two curvilinear incisions and the tumor as well as all the glandular tissues which present an axillary prolongation were removed by baring the aponeurosis of the major pectoral. Suture without drainage. Healing by primary union. The patient left the hospital October 21. On section a hard fibrous encapsulated tumor was found. The histological report said that there were a few mam-

mary tubes surrounded by fibrous tissues. Fibro-adenoma with very slight glandular element. Almost normal tissue in the mammary gland in complete rest. A little inflammation beginning. An analogous case to this was presented lately in a man of 47 years. Operation was performed to remedy the pain experienced by the subject and to prevent an altogether possible degeneration.

SPEESE, J.: **Tumors of the Male Breast.** *Annals of Surgery*, 1921, lv, 530-545.

Histologic examination had disclosed all varieties of sarcoma; the spindle-cell type, which predominated, is the least malignant. The varieties are subdivided as follows; spindle cell 12, round cell 7, chloroma 1, cystic 3; and melanotic 3. Some of the cases which have been reported should not be classified as breast tumors because they have originated in the skin, as pigmented moles or naevi. Sarcoma is reported to have developed from a nodule in the breast of 22 years' duration, and from other benign tumors most likely adenofibromata in nature. The final result of the operative measures has been mentioned in comparatively few cases. Finsterer could record but one case of cure; in this there was no recurrence after eleven years. Cornell mentions 11 recoveries. One case free for two years after the fourth operation; one recovery with development of keloid; one recovery with development of erysipelas on second day, no recurrence after eleven years; one recovery with inoperable recurrence, but after one year of Coley's treatment, recovery. Deaths three; death after second operation within five months in one case. Of the 25 tumors in the male breast, recorded by Williams, 16 were cancerous, 3 were sarcomatous and 6 were benign. Schuchardt's first collection included 274 malignant growths and 21 benign ones. Numerous reports of benign growths of the male breast point to the fact that the pathology of these conditions does not differ essentially from that of the female, and that the various tumor formations so common in the latter may find their counterpart in the male gland. The least common benign tumors occurring in either the male or female breast are those composed of a single type of tissue. The most common tumor described is the fibroadenoma. In the male breast these vary greatly in size. Many cases give the history of antecedent in-

jury. During the past few years considerable attention has been directed to the fact that all benign tumors of the breast are potentially malignant. Cyst-adenomata, more rare than fibroadenomata may also undergo malignant degeneration. The conclusions drawn are: Carcinoma is the most frequent tumor of the male breast, the disease is seen later in life, grows slower, ulceration is more common, and traumatism plays a more important rôle than in women; the operation mortality is nil; but the percentage of cures is probably much lower than in the female. Benign tumors are subject to the same malignant degenerations as are similar tumors in the female. Adeno-fibroma is the most frequent type of benign tumor encountered, although all varieties have been met with. Adeno-fibroma in young men may be produced by the affection termed "adolescent mastitis."

RYDER, G. H.: **The Administration of Pituitrin at the Beginning of the Third Stage of Labor.** *American Journal of Obstetrics and Gynecology*, July, 1921, xi, No. 1, p. 61.

At any time during the third stage hemorrhage may occur, even in the easiest labor, and in the apparently most normal. It is due mostly to relaxation of the uterus. The obstetrician must patiently await the full expulsion of the placenta, and the contraction of the uterus without signs of bleeding. The expulsion of the placenta is managed in one of three ways.

(1) The fundus is left entirely alone and untouched, and after a certain time, the placenta is expressed by Crede. The author mentions this method only to condemn it. He considers it uncertain. The uterus may "balloon up" and partially fill with blood.

(2) The obstetrician will put his hand on the patient's abdomen after birth of the baby; he locates the fundus through a sterile towel, and by holding it and gently tickling it with his finger tips, he starts it to relax. Usually in from ten to twenty minutes he can cause the placenta to be expelled by using Crede's maneuver. As these methods take time, which the obstetrician wants to devote to the child, the third method is more often applied.

(3) The physician looks after the fundus from time to time, entrusting it to a nurse.

(4) The use of ergot seems to be of little advantage and is even

dangerous. Ergot is slow in action, taking effect only after twenty to thirty minutes, by which time the third stage is often over. Ergot causes a tonic or continuous contraction of the uterine muscle, and may clamp down on the placenta; or may even cause the dreaded hour-glass contraction. Ergot should never be used before the uterus is empty.

(5) Pituitrin, pituitary-extract, or infundibulum, as it is variously called, in small doses seems to act on the uterus, producing not tonic contraction as does ergot but clonic contraction followed by relaxation. It may be safely used on a uterus which is not empty.

For years the author has made it a habit of having a hypodermic syringe filled with 1 c. c. of pituitrin ready for the third stage. On the first sign of relaxation it is given, and shortly after when the uterus is felt to contract firmly the placenta is expressed by Crede's maneuver. If the third stage is normal, pituitrin is given after the complete expulsion of the placenta. This is followed by a dram of ergotol by mouth. The fundus must however be carefully watched.

Many observers have had good results from routine pituitrin administration at the beginning of the third stage. The author tried this method on 100 ward patients, giving 1 c. c. of a Burroughs, Wellcome & Co. solution. The fundus was held for twenty minutes.

Eighty had no medication (pituitrin or ergot) after labor, and showed no need of it. In 25 the placenta was expelled spontaneously before twenty minutes; in 75 it was expelled by Crede after twenty minutes; in 74 with slight pressure; and in one with strong pressure, at the end of sixty minutes under ether. All of the 100 placenta came away completely. None needed manual extraction. No hemorrhage of the first degree, that is 16 ounces and over, occurred. In 93 cases the fundus remained hard for one hour; in 6 it softened and hardened alternately; in one it remained soft until pituitrin and ergot were given. Seventy-five of the 100 had no temperature of 100° F. (37.67° C.); 26 did have, in 16 of which cases it was probably due to uterine causes.

In another series of 100 cases pituitrin was not given. Of these, 45 needed pituitrin or ergot postpartum. None of the placenta were expelled spontaneously. Ninety-eight were expressed by Crede easily, two placenta were extracted manually, both after sixty minutes. The hemorrhage was slightly greater. Sixty had no temperature.

In none of the 100 cases, treated with pituitrin at the beginning of the third stage was there any bad effect. It tends to spontaneous placenta-expulsion, and to lessen the amount of blood lost.

Discussion.—W. E. Caldwell states that pituitrin has proven safe in its routine use in the majority of cases. Placental adhesion is rare, but it does occur, and the pituitrin might render its extraction more difficult. In such a case it might be well to wait till the effects of the pituitrin had passed off. Or, if there were a partial separation with bleeding, it should be possible to overcome the action of the drug with chloroform anesthesia. Caldwell thinks that an adherent placenta should be removed manually and the uterus packed. The uterus acts very much better, however, when pituitrin is given during the third stage.

Ralph W. Lobenstine has in 115 cases used 5 minims (.30 c. c.) pituitrin directly after birth, and from five to eight minutes after expulsion of the placenta. In cases with a history of hemorrhage a full ampule was given as a first dose. This was followed by an ampule of aseptic ergot, after the expulsion of the placenta.

James C. Edgar does not use it in a routine manner, but keeps it ready. He thinks it causes afterpains. Its excessive action is a great objection. He gives one dram (3.90 grains) of ergot after the third stage. If necessary, one should wait sixty minutes or even two hours, for the expulsion of the placenta.

CRAIG, J.: *An Operation for Retroflexion of the Uterus.* *British Medical Journal*, April 30th, 1921, p. 639.

The author opens the abdomen just above the pubes a little on either side of the midline. At a point on the external surface of the abdominal wall, about two inches from the edge of the wound and a little above the pubes, a ligature carrier of forceps pattern armed with stout silk is made to penetrate. When through the wall the blades are separated a little to widen slightly the aperture made; the carrier is then passed around the round ligament about an inch and a quarter from the uterus. Both ends of the silk are now grasped by the carrier and withdrawn through the aperture at which they entered, taking the silk, which being pulled upon, brings out a loop of round ligament. This maneuver is repeated on the other side.

The uterus will now be found to occupy the normal position. The next step is to dissect up a strip of the aponeurosis parallel with its fibers and at the edge of the aperture made; this strip should be about a quarter of an inch wide and of sufficient length to be passed easily under the loop of round ligament and stitched back in its bed with interrupted sutures. The round ligament is not stripped of its peritoneal covering which will now line a new canal for the ligament to play in with the movements of the body. The abdomen is closed in the usual way.

This method retains the use of the entire ligament. If pregnancy occurs, there is no chance of its giving way, and, owing to its proximity to the uterus, its support is permanently maintained.

JOHNSTONE, R. W., AND BROWNE, F. J.: **A Case of Double Congenital Hydronephrosis.** *Clinical Record, Edinburgh Medical Journal*, June, 1921, xxvi, No. 6, p. 369

In the ureter there is a chronic inflammatory change involving chiefly the muscular coat, and giving rise to a new connective tissue formation which causes thickening of the wall, atrophy of the muscle, and stenosis of the lumen of the ureter on the right side and on the left complete obliteration, in this case.

The stenosis of the right ureter interferes with the free exit of fluid secreted by the kidney, with secondary dilatation of the kidney tubules into cysts. On the left side the complete obliteration of the ureter has resulted in cessation of the secretion and partial atrophy and sclerosis of the kidney tissue.

The primary condition is not developmental, but probably a chronic inflammatory ureteritis during fetal life.

VERNON, H. M.: **Alcohol and Industrial Efficiency.** *British Journal of Inebriety*, 1921, xviii, 109-123.

This article deals with the influence of alcohol on the efficiency of non-manual workers. Dr. Sullivan (*Brit. J. Ineb.*, 1918, xvi, p. 1,) gave doses of one ounce (31.10 grams) or less of alcohol to a number of male munition workers and half an ounce to female muni-

tion workers, and he came to the conclusion that these quantities had no influence whatever, favorable or unfavorable. Aschaffenburg (Kraepelin's "*Psychologische Arbeiten*", i, p. 608) found that when wine containing about 11 $\frac{1}{4}$ ounces of alcohol was given to four compositors fifteen minutes before work, they set 9 per cent less type in an hour than they did on normal days. Rivers (The Influence of Alcohol and other Drugs on Fatigue, London, 1908) found that a dose of 40 c. c. (1.345 fluidounces) of alcohol distinctly diminished his powers of adjusting scientific apparatus. He was both slower and more clumsy. Staff-surgeon Mernuetsch found that when about 11 $\frac{1}{4}$ ounces (50 c. c.) of brandy were given to a number of soldiers, all of them picked shots, they made 30 per cent fewer hits in quick fire, and they shot much more slowly. It may be concluded that in many industrial operations, and perhaps in most of them, the consumption of a moderate quantity of alcoholic liquid, such as a pint of fairly heavy beer, is liable to cause a temporary lowering of manual skill.

BUTLER, T. H.: **Some Examples of Idiosyncrasy.** *British Journal of Ophthalmology*, March, 1921, v, No. 3, p. 119.

One patient reacted on a drop of 1 per cent solution of holocain into the eye by inflammation of the eyes, vomiting, diarrhea, mucoid discharge.

Another patient reacted on 1 drop of cocain, and one of eserine by giddiness and faintness.

Not all patients react the same. In fact these were rare cases.

GIES, W. J., KAHN, M., AND LIMERICK, O. V.: **The Effect of Tobacco on Man.** *New York Medical Journal*, 1921, cxiii, 809.

Acute intoxication from the first use of the plant is characterized by such familiar symptoms as vascular disturbance, muscular relaxation, diaphoresis, cephalalgia and vertigo, and is immediately followed by a tolerance to larger and frequently repeated doses of tobacco. These symptoms seldom recur after the specific antidotal mechanism of the body has once been set in operation. As used by those habitu-

ated to the plant, the effect of tobacco is chiefly confined to the vascular and psychic mechanisms. The immediate effect is a moderate but temporary rise in blood-pressure and an increase in the power of concentration. In consequence of a better adjustment of the age to its environment, the rise in blood-pressure does not exceed in degree or duration that which ordinarily follows a cold bath or sponge; it rarely equals that caused by such wholesome pastimes as dancing.

CUMMINGS, H. H.: **Modern Care of the Obstetrical Patient.** *Journal of Michigan State Society*, March, 1921, xx, No. 3, p. 88.

Davis (*J. A. M. A.*, 1920, lxxiv, 523) gives the mortality of women between fifteen and forty-five to be second greatest from child-birth. Meigo (*Children's Bureau Miscel.*, Ser. 6., Bureau Publ., 19, 1917) gives the mortality as 14.9 per hundred thousand.

Lacerations, relaxed vaginal outlets, retroversions, prolapsed uteri, cystoceles, retrocicles, adherent pelvic organs, chronic infections, fistulae, urinary and fecal incontinence, paralysis, ileosacral disease, traumatic neuritis, mental and nervous disorders are directly traceable to child-birth. Children are injured and come under observation with fractures, cerebral hemorrhages, birth paralysis, mental inferiority and epilepsy.

In every case the physician is not to blame but the problem of reducing the maternal mortality, and decreasing the number of damaged mothers and children devolves upon the physician.

BREHN, W.: **Aftercare of Obstetrical Cases—Immediate or Remote.** *Ohio State Medical Journal*, May, 1921, xxii, No. 5.

The author recommends these notes on eclampsia to be taken at their face value:

(1) Problematic relationship between mild and profound toxemias of pregnancy warrants a study of the former in order to gain information of the latter.

(2) The treatment which depends upon the greatly increased use of carbohydrates, would lead us to suspect that the toxemia originates from a deficiency in carbohydrates in diet.

(3) Carbohydrate deficiency is of two-fold origin: (a) relative, due to sudden demand for glycogen to supply the fetus in utero; and (b) an actual deficiency induced by the nausea and vomiting by lessened intake.

(4) Carbohydrate deficiency causes a glycogenic deficiency in the liver as they are called on to supply the lack in the organism.

(5) Experimental evidence shows impaired liver function, allowing the body to become flooded with toxins after carbohydrate starvation.

(6) Pathologic changes in liver can be produced artificially by use of certain chemical poisons; these changes are identical with those of fatal toxemias, and these are made to rapidly disappear by ingestions of carbohydrates.

(7) Mild cases of nausea and vomiting are treated by increasing carbohydrate intake and making the patient eat in smaller amounts and more often increasing the carbohydrate intake by use of from 8 to 16 doses of sodium bicarbonate in 1 or 2 ounce doses.

He sums up by saying eclampsia is not a one man case. If in poor surroundings, send the patient to a good hospital.

Comparing conservative and radical treatment the convulsions are what kill or do the serious damage. If they are prevented or quieted, Nature will restore the patient (Stroganoff's treatment). Morphine in $\frac{1}{2}$ grain (.0324 gram) dose at once (repeat if needed in 1 or 2 hours), chloroform in smallest amount which will quiet patient, then kept so in darkened and quiet surroundings, depending upon venesection to take place of hot packs and depletion through sweating, kidneys, bowels, etc., and measures which lower blood-pressure. This sums up the conservative or Stroganoff's idea.

In English maternities and largely in America there are methods chiefly radical which terminate pregnancy quickly and thus remove all of the causes of the convulsions, either by vaginal or abdominal cesarian section, or if not urgent, then employment of elimination by bowel, skin and kidneys, with some slower emptying of the uterus.

Of post-eclampsic pneumonia, prophylaxis and posture on the side so as to prevent aspiration of saliva or vomitus.

Of asphyxiation due to swallowing the tongue, posture on side and care will prevent.

Of endocervicitis, the chronic form depends upon infection of the

deeply situated terminal tufts of the endo-cervical glands, which undisturbed would harbor the germs for years or for life-time, therefore to cure same.

(1) Complete denuding of the entire endocervical mucosa from the external to the internal as with the preservation of the muscular structure.

(2) Accurate relieving of the denuded cervical canal by a cylindrical cuff of its vaginal sheath.

He also takes up and discusses recent:—

(1) Studies on blood aspiration and transfusion.

(2) The postpartum babe.

(3) Abortion.

(4) Pregnancy and influenza.

(5) Endocrinology.

(6) Obstetrics a major specialty.

(7) Prenatal care.

(8) Corpus luteum studies.

PECK, G. A.: **Treatment of Abortion Complicated by Sepsis.** *American Journal of Obstetrics and Gynecology*, April, 1921, i, No. 7.

The literature on the subject and the various methods adopted by the individual members of the staff of a single institution show such a lack of uniformity that one would conclude there was no standard treatment for the condition if one had not convictions born of experience with this particular subject.

The older and till recently stronger (numerically) group of advocates hold that every vestige of the products of pregnancy in an infected uterus must be promptly removed. The other group maintains that this infection is not dependent upon the mere presence of these products of pregnancy, and to remove them forcibly is to do serious and unwarranted harm.

The term abortion is defined as any previable expulsion of the human ovum, and also the complication of sepsis is defined as any rise in rectal temperature to 101° F. (38.33° C.) or to 100° F. (37.78° C.) by mouth accompanying abortion. Furthermore the author wants it understood he does not include such end results and complications of abortion as general sepsis, pyemia, parametritis.

salpingitis and peritonitis. Abortion complicated by sepsis is comparable to puerperal sepsis, and differs from it in degree only except that the products of conception may still be in utero in abortion. Viewing them as parallel so to speak, the treatment of puerperal infection as is generally accepted today, compared with treatment in vogue twenty years ago with the radical treatment of abortion complicated by sepsis is identical. It is up to the doctors to bring the treatment of the latter up-to-date.

In the literature in support of this view, DeLee (*Principles and Practice of Obstetrics*. W. B. Saunders & Co. 1913, p. 877) says:—"For the past five years, I have practically dispensed with local treatment in puerperal infection being convinced that it does much more harm than good. Only if the woman has uterine hemorrhage do I interfere and then, by packing the uterus with a 2 per cent iodoform gauze to stop the flow and aid the expulsion of the retained mass causing it. This packing is repeated if needed daily for several days. . . . Only after local barriers are considered strong enough and involution of the uterus well advanced is the removal of retained material attempted. This is safe only after the temperature has remained normal for two or more weeks."

"It is gratifying to note that one voice after another is being raised against interferences with the process of healing adopted by Nature, and that operations will be reduced to the one operation,—to stop hemorrhage."

Ries (*Surg. Gynec. and Obstet.*, April, 1918, p. 400) advocated in 1909 and reiterates recently the following:

"While the active search for placental remnants in the uterus in all or the majority of cases of puerperal sepsis was the treatment in vogue years ago, the teaching now accepted is 'hands off' the septic puerperal uterus except for serious hemorrhage. Cases of abortion without fever may safely be left to spontaneous termination, the only contradiction being severe or protracted slight hemorrhage. Cases of septic abortion are no exception to this rule. They can terminate spontaneously during the fever, and the fever drops after the abortion."

On the aggressive or radical treatment of this condition Vineberg and Wiener (*Am. Jr. Obs.*, 1917, p. 975) say, "The treatment of febrile incomplete abortions on the second gynecological service of Mt. Sinai Hospital has always consisted in emptying the uterus as early as possible:"

"When the period of gestation is less than eight or ten weeks, we employ branch dilators to dilate the cervix and usually use the placental forceps to remove the uterine contents, supplemented with the sharp curet to scrape away any tissue adherent to the uterine wall.

In cases more advanced than eight or ten weeks, we usually make use of a vaginal hysterotomy, and then we have no difficulty in removing the uterine contents with the fingers, aided at times with the placental forceps."

Darnall (*Interstate Med. Jr.*, 1917, p. 1066) advocates essentially the same aggressive treatment, but tempered with conservatism.

Ochaver (Vol. on Gen. Surg., Introduction Pract. Med. Series, 1920) gives Bumm (Sammlung zwangloser abhandlungen aus dem Gebiet der Frauenheilkunde und Geburtshilfe, 1901, 2, iv, p. 5) "richly deserved credit for his protest against any intrauterine operation in the presence of sepsis" that does not consider Nature's defensive efforts. Bumm says:—"The employment of the curet to the infected puerperal uterus should be restricted to the utmost. Scraping with the curet disturbs the natural curative measures of the tissues, the protecting wall of granulations is broken through and the passage is again opened to the bacteria. In the presence of very virulent forms of streptococci rapid transmigration of the uterine walls and fatal infection of the peritoneum can be caused in this way."

The authors' plan follows:

Diagnosis.—History taking confirmed by vaginal examination after shaving and cleansing the vulva; note condition of the cervix, adnexa, and amount and character of the discharge; a vaginal smear is usually taken at this time.

Posture.—The Fowler position is regularly employed for drainage of the uterus.

Diet.—Is restricted to water, bouillon, orange juice and dry toast until temperature falls.

Bowels.—Are moved by an S. S. Enema when desired.

Pain is controlled by morphin sulphate, grain 1/8 (.0081 gram), hypodermically repeated on order only.

Locally the vulva is protected by a sterile pad which is not put back when once removed, and which is changed every twelve hours or more often if needed. A vaginal douche of potassium perman-

ganate, 1:5000 at a temperature of 110° F. (49.33° C.) is ordered for offensive discharge or for other reasons if needed; otherwise no douche is given.

The abortion usually terminates spontaneously, and temperature falls by lysis.

Hemorrhage if too severe must be regarded; the method of control is indicated by the extent of the dilatation; (*a*) if dilatation is slight, pack the vagina with 2 per cent iodoform gauze; if severe hemorrhage pack both the cervix and vagina; (*b*) after dilatation is complete the finger may be introduced into the uterine cavity and contents gently removed.

Conservatism is especially applicable in those cases which have already been curetted.

RADASCH, H. E.: **Superfetation or Superfecundation?** *Surgery, Gynecology and Obstetrics*, April, 1921, xxxii, 339.

The author saw twins of very different development, leading to the conclusion that it was an instance of superfetation.

Some writers consider superfetation an impossibility and believe them all to be superfecundation in which the smaller fetus either died early or was markedly retarded in its development (Schultz, Godlewski, Kuntz, and others). At present superfetation means a second impregnation of a female already pregnant. Superfecundation is the impregnation of two or more ova of the same stage of development by coition at different times. Superfecundation according to Merteus means a second impregnation of one already pregnant, but before the decidual membrane is formed. By superfetation he means a second impregnation after the decidual membrane has been formed. According to Marshall superfetation is a condition in which fetus of different ages may be present in the same uterus. There is no mention of the necessity of a second coition. According to this author, ovulation takes place during pregnancy, and if, owing to the occurrence of coition, the ovum becomes fertilized, then superfetation takes place. The ova belongs to different periods of ovulation.

According to King, superfecundation consists of the fertilization by successive matings of ova belonging to the same period of ovulation. Superfetation is due to the fertilization of ova of different

periods of ovulation followed by copulation occurring during pregnancy, which leads to the simultaneous development of two sets of ova. This involves a second coitus and a second ovulation.

Summer, on the other hand, believes that superfetation may be the result of a second coitus, but not necessarily so. In mice the sperm has been retained and superfetation taken place a long time after. Harmon thinks superfetation is a condition in which the uterus contains fetus of different degrees of development, due to a second coitus or not.

If a second coitus is necessary in all cases, then the chances of superfetation are rather limited. A second litter of young following a short time after the first, without a second copulation, would be possible only if the sperm retains its longevity in the genital tract of the female. How long sperm lives in the female is not known, but in lower animals it lives for quite a time. In the hen it is said to live 5 weeks. In mice a second litter is often born without renewed coitus. The sperm of man may be kept alive for several weeks upon a warm stage. Duchresen and Zweifel found living sperm in the oviduct of a woman where no cohabitation had occurred for four weeks. If this is the case superfetation of the subsequent ovum seems possible. If the sperm lives four weeks it might live longer. Of course, nothing is known of the ability to fertilize an ovum after that time. It is generally believed that the ovum soon loses its power of chemotaxis. It is believed to degenerate at the end of 7 days. Some believe that the egg may live much longer and if it would live from one ovulation period to another then its fertilization would be a superfecundation with a difference in the developmental stages of the two fetus. There is no doubt that the ovum lives only about seven days. The author formulates: "Superfecundation is that condition in which two or more ova belonging to or originating at the same ovulation period are fertilized by sperm from coitus practiced at different times by the same or another male. The ova may originate from one or both ovaries, but in the latter case the ovulation must be practically simultaneous."

"Superfetation is the fertilization of two or more ova that belong to or originate at different ovular periods by sperm from coitus at the same or different times, by the same or another male. This imposes a pregnancy superimposed upon another by the fertilization of an ovum of a later date, by the same or another male.

Both fetus develop in the same uterine cavity, but are of noticeably different ages." The author emphasizes that one coitus may suffice for the double purpose.

Hippocrates, Aristotle, Pliny, Schenk, Schacher, LaChansse and others have discussed it:

Merteus for the superfecundation gives: (1) an ovum may have two yolks, (2) graafian follicles may have two ova, (3) in the same ova two or more follicles may mature at the same time, or (4) both ovaries may ovulate at same time, giving rise to two or more ova. In the first case it seems almost inevitable that both yolks should be fertilized; in the second and third superfecundation might readily occur, simultaneously or successive; in the latter case it might give different developmental stages of the various fetus. In the fourth case there is the greatest possibility of superfecundation. The sperm may go up only one oviduct and this is most probable if the uterus is double. This is rare in the human, but it has been proven, when due to intercourse with different individuals, especially of different races. Superfecundation is quite common in lower animals, and is frequently met with in man. Some consider all cases of superfetation instances of superfecundation. In lower animals superfecundation is well shown in hybrids, especially in animals with double uterus, yet in ruminants and ungulates it does not commonly occur. The mare will take the stallion or the jack, and cases are on record where mares have foaled a colt and a mule, having been successively mated to the stud and the jack. Mercer cites the case of a negress who was married to a white and gave birth to a negro boy and a white girl. Debouillon mentions a negress who had two male infants, one negro and one mulatto. She had had intercourse the same night with a negro and a white man. Other such cases are mentioned by Moseln. Bloch cites an Indian woman with triplets, Caucasian, Negro and Indian. She had had intercourse with all three.

Brassawolus (1500-1555) said he had known superfetation to be epidemic. As to the possibility of superfetation the following is noted: (1) By the seventh to eighth day after fertilization, the ovum is usually in the uterus and the internal os and the oviducts are closed by a decidual mucosa. Soon a mucous plug forms in the cervical canal and as a result of these changes it is impossible for sperm to pass up the genital tract. Horus, Burns and Magendie have shown that sometimes the ovum does not descend until the eighth, fifteenth

or twentieth day after fertilization (Cassan). The mucous plug does not always form. Herzog thinks it forms in non-pregnant women, likewise. The oviducts have been found open in the third month. It was formerly believed that the ovular decidua and decidua vera were soon (by end of the third month) fused and thereby closed all communications between the cervical canal level and the orifices of the oviducts. But, Minot showed that the ovular decidua (decidua reflexa) degenerated early and became nought but a structureless, hyalin membrane. In early stages of pregnancy there then may be a thin space between the decidua vera and the ovular decidua where the sperm might work up to the oviduct. Campbell states, that the mucous plug may come out. (2) The adversaries of the superfetation say that typical ovulation ceases during pregnancy. Ovulation has been seen in lower animals during pregnancy. The corpus luteum resulting from a ruptured graafian follicle does not atrophy and disappear at the end of a few weeks, as the ordinary corpus luteum spinium does, but continues to exist up until the eighth or ninth month of gestation. It inhibits ovulation during pregnancy, assists in implanting of the ovum in the uterine mucosa, stimulates the formation of a menstrual decidua, stimulates the mammary gland to lactate, causes menstruation and is supposed to prevent the lodgment, implantation and development of another ovum. Mayrhofer says that the corpus luteum of pregnancy like the false corpus luteum of menstruation, disappear and is replaced by another at short intervals, and that the belief that the corpus luteum of pregnancy lasts from nine to twelve months is false, giving some proofs.

It is claimed that the oviducts of the pregnant individuals are too short suitably to apply themselves to the ovary so as to receive the newly ovulated egg. Also in pregnant animals, including human, the ciliary action ceases immediately with the onward movement of the ovum. It is also maintained that a pregnant uterus softens and varies so from the normal function that it is unfit for its calling, so that a newly fertilized ovum could not continue to develop therein. This statement seems rash. It is also claimed that through pressure within the uterus, due to the development and growth of the fetus, maturation of another graafian follicle is impossible. Many experiences prove against this assertion.

In order to establish the occurrence of superfetation it must be noted:

(1) A marked difference in age and size of the two.

(2) If labor occurs at full term for the first child, there will be no lochial discharge and lactation does not begin. These phenomena will occur with the birth of the second child.

(3) Death must be demonstrable as recent, if it occurs in one.

(4) Usually each has its own placenta.

(5) There should be no evidence of extrauterine hemorrhage separating one placenta and thus accounting for difference in development.

(6) The second conception retains its attachment to the uterus until after the birth of the other. The uterus should contract and practically no hemorrhage follow the first placenta.

Fodere's rules: (1) The lochia must remain absent after the birth of the first.

(2) The breasts should contain no milk. There should be no milk fever, although the breasts are well developed.

(3) The patient feels movement of the second child soon after delivery of the first.

(4) The abdomen remains enlarged and all signs of pregnancy should continue and not abate.

(5) Skilled experts should readily prove the presence of a second child.

(6) At the second birth a lochial discharge should appear, milk should flow, and the mother should feel all the usual sequelæ of the ordinary birth.

(7) The second child is always stronger and better developed than the first one.

Cases of superfetation have been given by Cassan, Baubin, Ruysch, Mertens, Maton, Arrowsmith (Eisemann's case) Desgranges, Churchill, Langmore, Whalen, Bloch, Herzog (3), Spaulding, Andrew, Gustetter, Flowers, Franco, Jepson, Harmon. The latter two are animals.

Bonner believes that 14 days after delivery is the earliest period at which the uterus can assume its functions. The writer reports a case of superfetation.

CHALFANT, J. A.: **Ovarian Pregnancy with Report of a Case.** *Pennsylvania Medical Journal*, May, 1921, xxiv, p. 549.

There have been several complete reviews on the literature of this subject: Norris and Mitchell (*Surg. Gynecolog. and Obstetrics*, 1908, vi, 460); Norris (*Surg. Gynecolog. and Obstet.*, 1909, ix, 123); Lochyear (*Proc. Roy. Soc. Med., Sect. on Obstet. and Gynecolog.*, x, No. viii, 158); and Meyer and Wynne (*Johns Hopkins Hosp. Bull.*, 1919, xxx, 92.)

The criteria suggested by Spiegeberg (*Arch. of Gyn.*, 1878, xiii, 73) have been generally adopted: (1) the tube on the affected side must be intact; (2) the fetal sac must occupy the position of the ovary; (3) it must be connected to the uterus by the utero-ovarian ligament; and (4) definite ovarian tissue should be found in the sac wall. Williams modified this last point by suggesting that ovarian tissue should be found in several places in the sac wall at some distance from each other. Norris suggests that the tube shall be microscopically as well as macroscopically normal. In examining a case of supposed ovarian pregnancy he found fetal structures in the tube, showing that in this case the pregnancy had been primarily tubal.

Ovarian pregnancy apparently occurs by fertilization of the ovum in the graafian follicle. Mall and Cullen (*Surg. Gynec. Obstet.*, xviii, 698) report a case in which luetal cells surround the gestation sac. Some observers have claimed that the fertilized ovum invaded the ovary from its surface.

The author's case conforms to the Spiegelberg criteria and is an ovarian pregnancy in a woman giving birth to a third child, after nine years, at forty.

RAY, H. M.: **Primary Ovarian and Primary Abdominal Pregnancy.** *Surgery, Gynecology and Obstetrics*, 1921, xxxii, 437-442.

Although the possibility of primary ovarian pregnancy is now universally admitted, there are still a number of critics who have not abandoned their skepticism. Up to the present time there have been reported at least twenty authentic cases whose primary ovarian origin has been conclusively demonstrated by careful microscopical study. From the analysis of all the previous cases and the author's own

specimen, it is apparent that considerable variety occurs in the embedding of the blastocyst in the ovary, more especially in respect to its relations to the corpus luteum. Upon one point all observers are agreed that the layer next to the fetal tissue is connective tissue in some form and that the lutein cells do not play the part of decidua; certainly, they appear to play no part histologically in the attachment of the ovum. The tissue in which the ovum is embedded and subsequently becomes attached, represents the young connective tissue which is formed within the lutein tissue or theca interna in the first stage of organization of the contents of the ruptured follicle. The factors of ovarian pregnancy appear to be fertilization and retention of the ovum within the graafian follicle, or in its immediate neighborhood until such time as it becomes capable of embedding itself by its own activities, when it may do so in any patch of connective tissue sufficiently to accommodate it and sufficiently vascular to meet the demands of its nutrition. Here the author reports two cases and gives Spiegelberg's criteria (reported elsewhere).

WALLACE, W. T.: Etiology, Diagnosis and Significance of Hematuria of the Genito-urinary Tract. *Journal of Oklahoma State Medical Association*, April, 1921, xiv, No. 4, p. 81.

Hematuria is of very frequent occurrence, and is the result of various conditions. Hematuria is of grave significance, and is due to some serious pathology. It may be urethral or prostatic and urethral, vesical, urethral or renal, including the kidney and its pelvis.

Its cause may be: (1) traumatic, including accidental injury, and also that occurring from stone; (2) inflammatory, including acute nephritis, chronic inflammatory affections of the kidney, tuberculosis, acute and chronic inflammation of the pelvis of the kidney, ureter, bladder, prostate, and also acute urethritis; (3) vascular, blood dyscrasia, such as hemophilia, etc., and various obstructions of the kidney, especially that due to torsion in mobility of the kidney, hydronephrosis, varicosity of the vesical veins, especially that due to prostatic engorgement; (4) chemical, in which class should be placed hemorrhage from irritating drugs, as turpentine, cantharides, etc.; (5) toxic, in which the hemorrhage is the result of vascular changes occurring in severe toxemias, such as that resulting from malaria,

acute yellow atrophy of the liver, yellow fever, scurvy, pregnancy, etc.; (6) neoplastic; and (7) parasitic.

The etiological factors of this tract are anterior and posterior gonococcal infection, granular urethritis, ulcers, papillomas, strictures, abscesses, foreign bodies, calculi, tuberculosis instrumentation, acute prostatitis, seminal vesiculitis and syphilis.

Vesical hematuria is caused most frequently by tumors of the bladder, either benign or malignant. A benign tumor, if left untreated will be transformed into a malignant tumor. Prostatic hypertrophy, both benign and malignant, is next in frequency, then tuberculosis, granular cystitis, dilation of the vesical veins due to inflammatory condition of the prostate, ulcers, instrumentation, inflammatory changes in the bladder wall, external tumors producing pressure, and syphilis, which authorities have scarcely mentioned and consider a rare condition, but which, in the author's experience and observation, is a very frequent causation. It is evidenced by an infiltration and thickening of the mucous membrane, most frequently at the neck of the bladder and extending over the trigonum and the para-trigonal space. In a syphilitic bladder we may find a cluster of papillomas, other times sessile in character, again as a polypoid growth, and also a general infiltration, resembling an active malignant bladder, yet it is not so painful and does not bleed.

Ureteral hemorrhage is due more frequently to tuberculosis than calculi, in its passage or lodgment in the tract, in traumatism, and torsion, due to movable kidney.

Hematuria arising from the kidney is frequently due to a pyelitis, both acute exacerbation, also to erosions of blood-vessels caused by a moveable calculi, to pyelo-nephritis in certain stages, to a pyonephrotic kidney in certain stages of suppuration, to nephrolithiasis, to dydronephrosis, to tumors of the kidney. The expression symptomless hematuria should not be used. The author has found some of these cases to be syphilitic. Hematuria in children is always suspicious of tuberculous pyelitis, pyelo-nephritis, and renal growths or tumors.

A physical, microscopical, urinary, and cystoscopic examination should be made.

Discussion.—T. H. Hays thinks the most frequent cause is neoplasm: the second, injury; and the third, tuberculosis. If the microscopical examination shows blood casts in the urine, the source of

hematuria is pretty sure to be in the kidney; if there are no casts, the trouble is between the pelvis of the kidney and the external meatus.

Traumatism in the ureter can be detected by cystoscopic examinations.

The most troublesome form of hematuria is that from new growths in the bladder. There is an hematuria secondary to contagious disease, especially scarlet fever and measles. In injury the kidney should be bared and the kidney packed with gauze. The kidney is removed only on severe laceration.

A tuberculous kidney is removed, or a general treatment given.

MACALPINE, J. B.: Symptomless Hematuria: A Plea for Early Investigation. *British Medical Journal*, April 30, 1921, 1, 631.

The name symptomless is bad for hematuria unaccompanied by any other symptoms. Almost all disease of the urinary tract give rise to hemorrhage at some stage.

The author had cases of scurvy, rickets, early renal tubercle, one of essential renal hematuria, one of stone impacted in the pelvic outlet, where the patient had had no pain. But often the cause will be neoplasm, where there are no other signs. Walker found 50 per cent of new growths in 74 cases accompanied and unaccompanied by other symptoms; and 72 per cent of these were malignant. If he had referred to "symptomless" hematuria, the author thinks that the percentage would have been higher.

The anatomical point from which it starts, and the nature of the pathological process must be determined.

Symptomless hematuria from the upper tract must be diagnosed during the attack. The cystoscope is the only renal guide. There is no pain, and no lump. Himman found among 709 cases of renal growth published by eight surgeons, that hematuria was the onset symptoms in 43 per cent. When the cases came to operation only 6.6 per cent showed hematuria, unaccompanied either by pain or tumor. This first hemorrhage does not usually last long, usually only a few hours or days. Among 146 cases Denachara found only one in which hematuria lasted 2 weeks. Papilloma or hypernephroma are the usual types; they are benign in their onset. It may exist for years.

Pain is relieved by hypodermic morphin injections, and diathermy will often cure these growths rapidly. The symptoms are treated, but it is not always safe to stop the hemorrhage.

MAHLE, R. E.: **Adenomyoma of the Fallopian Tube.** *Surgery, Gynecology and Obstetrics*, July, 1921, xxxiii, p. 57.

Von Recklinghausen, in 1896, advanced the theory that adenomyomata of the Fallopian tube originate in the Wolffian body, since in 27 cases the histological picture resembled that of the primordial kidney. In only two instances could he trace any relation of the adenomyoma to the mucosa of the tube. The first case he explained as due to a rupture of the gland into the tube lumen, and the second, as a continuation of a union between a Wolffian duct and a Muellerian duct. This hypothesis completely overthrew the generally accepted opinion of the Muellerian duct origin of tubal adenomyoma.

Rossmann (*Arch. f. Gynaek.*, 1897, liv, 350) thought that these adenomyomata arise from accessory Muellerian ducts. Chiara (quoted by Lockya, *Fibroid and allied tumors*, etc. London; and McWilliam, 1918, p. 307) in 1887 concluded that 6 of 760 specimens with tubal swellings which he examined postmortem were not tumors but products due to a chronic catarrh of the genital system. Von Fraque (*Ztschr. f. Gebritsh. u. Gynaek*, 1900, lvii, 41) showed that the epithelial structures of the tubal adenomyomata are derived from mature mucous membrane by a process of inflammation. He found adenomyomata in cases of partially healed tuberculous salpingitis and in such showing chronic inflammation of the tube wall. Meyer, in 1902, likewise found inflammation in cases of tubal adenomyomata. Many cases were associated with tuberculous and gonorrheal salpingitis, hydrosalpinx, and ovarian diseases. Maresch, in 1908 (Karger, 1908) called it salpingitis isthmica nodosa. He traced them from mature tubal epithelium. Cullen (*Adenomyoma of the uterus*, Phila., Saunders, 1908, 270) traced adenomyomata to mature uterine endometrium, almost all cases showing that Wolffian or Muellerian ducts could not be the origin of these structures.

Twenty-three cases of adenomyomata of the Fallopian tube were found at operations at the Mayo Clinic. Four thousand one hundred and eighty-nine fibromyomatous uteri were removed, 332 of which

contained adenomyomata. Cullen gives 5.7 per cent, MacCarty and Blackman 6.43 per cent; 6.22 per cent contained tubal adenomyomata. In 14, direct origin from mature tubal epithelium was traced. In 6 cases adenomyomata and tuberculous salpingitis were associated. The author concludes that the origin is in the tubal mucosa. All specimens showed some evidence of inflammatory reaction. These tumors are situated in the proximal end of the tube and isthmus, and appear as small swellings. The process is, as a rule, circumscribed. Two of 23 of the patients had normal pregnancies.

There are some slight histologic differences between adenomyoma of the uterus and the tubes.

ASHHURST, A. P. C.: **Umbilical Hernia.** *Surgical Clinics of North America*, Feb., 1921, i, 161.

A report of a case is given. This patient, a very stout woman, has had an umbilical hernia for several years. About eighteen months ago she was operated on for gall-stones, and since then her umbilical hernia has continued to enlarge. She decided that it was a useless encumbrance, and came to the hospital with the request for an operation. She was operated on. Recently a patient who had had an umbilical hernia the size of an orange for seven or eight years noticed while at work that the front of her dress was soaked with blood. At the hospital the physician found the bleeding to come from a varicose vein in the extremely thin skin covering the hernial sac. Bleeding was soon checked by pressure, with the patient recumbent. She was operated on.

WALKER, J. W. T.: **Hydronephroma of Kidney; Secondary Growth of Ureter.** *Proceedings of the Royal Society of Medicine*, Feb., 1921, xiv, No. 4, p. 23.

The patient, 53 years old, had suffered from scalding on micturition and from hematuria. The onset was sudden and the hematuria continuous, although it varied in amount. Clots had been passed. There was pain in both testicles. Retention had been relieved by

catheters. In the cystoscope a trickling of black blood was seen from the left ureter. A left nephrectomy was made. The kidney showed hypernephroma,—round in shape and embedded in the upper half of the kidney. The operation was well borne, but hematuria recurred, and another operation had to be made, as anemia was becoming profound.

WALKER, G.: **The Secretory Pressure of the Kidney as an Index of Pathologic Conditions.** *Annals of Surgery*, 1921, lxxiii, 610-612.

The results which the author has obtained with his method of reading the secretory pressure of the kidney indicate that it has a place as an additional means of renal diagnosis, not only in surgical diseases of the kidney, but in all forms of nephritis as well. The apparatus is described. In a normal kidney, the pressure is found to be from thirty-five to forty-five. Seven cases are given. The first complained of having passed renal calculi. Complete examination, comprising phenolsulphonaphthalein, x-ray, etc. showed no abnormal condition. Pressure at the end of twenty minutes on right side, 43. Pressure at the end of twenty minutes on left side, 42. This is an example of normal kidneys. The second was a case of advanced parenchymatous nephritis with double pyelitis. Pressure, right side 25; left side 12. The third suffered from chronic nephritis with pyelitis. Pressure, right side 27; left side, 25. The fifth case was a moderate degree of hydronephrosis left side. Pressure left side 12; right side, not taken. Case 6, had hydronephrosis on the left side, pressure left side, 18; right side 29. These patients were all males between 30 and 40 years of age except the last who was fifty-eight.

MACLEAN, N. J.: **The Indications for Nephrectomy in Renal Stone.** *Lancet*, 1921, xli, 196-199.

Renal stone is dealt with surgically by pyelolithotomy, nephrolithotomy, or nephrectomy. It is sometimes difficult to decide when a primary or even a secondary nephrectomy for renal stone should be done. If a conservative operation is used, often symptoms return,

the primary infection having persisted or stone having reformed. This must happen however. Infection appears to be the most important factor, and when present the chances of recurrence are thereby increased. Neither the length of time in which stone has been present, the size of the stone or stones, nor even the degree of infection is necessarily a contraindication to a conservative operation. A case is given which illustrates a very small stone obstructing the upper end of the ureter and leading to such enormous dilatation of the kidney and destruction of its function that nephrectomy was called for. A large pyonephritic kidney calls for preliminary drainage and secondary nephrectomy. This may need to be a subcortical enucleation as was done in three of the author's cases. Rather than secondary nephrectomy the term two-stage nephrectomy might well be applied in these cases. Tuberculosis of the kidney associated with stone or stone associated with tuberculosis calls for nephrectomy, provided the other kidney is normal. Here the nephrectomy is done for the tuberculosis and not for the stone necessarily. Carcinoma also calls for nephrectomy, if diagnosed early enough to hold out the hope of non-recurrence. Nephrectomy is sometimes done when the kidney is exposed and no stone found; this is condemned by Norris. The difficulty in arriving at a decision as to nephrectomy is where stones recur after removed from comparatively good kidneys. A case is sketched in which a man has had stones removed twice and again has symptoms. The left kidney has always been normal. In these cases the author recommends nephrectomy. There is the danger, of course, of bilateral stone. The cases require careful pre-operative and postoperative treatment. The use of distilled or rain water, or water from certain springs containing no lime can do no harm and may do much good. There is no proof that lime-free water lessens the tendency to stone formation. The author inclines to the germ theory as the causative factor in urinary stone. Absence of pus does not necessarily mean the absence of infection. Mayo (Mayo, C. H.: Stone in the Kidney. *Am. Surg.*, July, 1920, lxxi, p. 123) reminds us that the shells of crustacea are formed by bacteria in the water. It is recognized that incrustations on the teeth and that gallstones are due to the action of bacteria.

Changing the reaction of the urine, if highly acid by large doses of potassium citrate, or, if alkaline, by acid sodium phosphate combined with urotropin, or by an intensive treatment alternating from

one to the other, is of decided benefit. The use of an autogenous vaccine, apparently in some cases, has given good results. Local infections should not be lost sight of: Crowell and Thompson (Preoperative and postoperative treatment to prevent recurrence of stone following nephrolithotomy. *Surg., Gyn., and Obstet.*, Dec., 1919, xxix, p. 609) have recently advanced a treatment for the prevention of recurrent stone, which promises good results. It consists in irrigation of the renal pelvis with 0.5 of 1 per cent silver nitrate solution twice weekly, the strength being increased and continued until infection has disappeared. The author used the following method when infection was present; a rubber tube of very small caliber is inserted into the pyelotomy incision. If a nephrolithotomy is done, the tube can be inserted through the incision in the kidney tissue. Through this tube two or three drachms of a 10 per cent solution of argyrol are instilled into the pelvis of the kidney daily, until the infection has cleared. So far this method has shown good results. The discussion which followed seemed to indorse heartily the author's position especially in advising secondary nephrectomy in place of primary nephrectomy.

STARR, N. A.: **Tea Intoxication.** *Medical Record*, N. Y., 1921, xcix, 463-483.

It is interesting to note that in Sir James Mackenzie's book on the *Study of the Pulse* (p. 111) he states that he knows of a man who after an attack of influenza could not drink a cup of tea without his pulse intermitting every third or fourth beat for a short time and that this tendency persisted for several months. H. C. Wood, in writing upon caffeine, states that 12 grains (.780 gram) is the largest amount that he had met with as having been taken by man. In that case in about two hours intense physical feebleness and a very uneasy condition of the mind were developed; very marked general muscular tremulousness soon followed and the mental anxiety increased. After this passed off, there was obstinate sleeplessness, with active and persistent thinking and frequent urination. The brain power was stimulated very markedly. An example is given of a foot ball team, drinking two quarts of tea a day; they suffered from marked tremor of the hands, restlessness, insomnia, loss of appetite, indiges-

tion, nervous apprehension and depression of spirits. Tea is given by athletic trainers before contests; it is drunk by mountain guides, by aviators before making flight, by soldiers. In Russia where tea is drunk very generally, it is taken before muscular effort, particularly. In the reports of asylums in Ireland, excessive tea drinking is given as a reason for insanity. The Irish alienists state that the characteristic symptoms are insomnia, periods of despondency alternating with states of anxiety and great restlessness. The symptoms manifested in Irish servant girls, constant tea-drinkers, were, in order of frequency, headache, vertigo, despondency, palpitation of the heart, indigestion, insomnia, restlessness, mental confusion, constipation, loss of appetite and tremors. Hoch and Kraepelin in 1895 showed that during the first hour after an appreciable dose of strong tea there is a marked increase in muscular power and endurance. This began about twenty minutes after the tea was taken, reached its maximum in an hour and lasted several hours. There is a more rapid train of thought, an increased association of ideas, keener appreciation of things read or heard or seen,—and a mental stimulus which they estimate as an increase of mental activity during the first hour of from 5 to 8 per cent. It would be foolish to assert that this is in anyway harmful in moderation.

HIGHMAN, W. J.: **Vitiligo.** *Dermatology*, New York, 1921, p. 214.

Vitiligo, called achromia, piebald skin, is a white macular eruption with borders of hyperpigmentation about the colorless islands.

No subjective symptoms are present, but often the patient, becoming self-conscious, grows depressed or even melancholy. "Nothing is known of the etiology of the disease and all treatment is in vain."

This is the newest, and most extensive textbook on the subject.

McNAIR, J. B.: **Susceptibility to Dermatitis from *Rhus Diversiloba*.** *Archives of Dermatology and Syphilis*, 1921, iii, 625-633.

The word "immunity" is used in this article to designate the effective resistance of the organism against the principal, or most ac-

tive, irritant in *Rhus diversiloba*, and to include what is known as tolerance. Naturally immunity exists toward the principal irritant. It is usually relative and seldom absolute. Species immunity exists among some animals and birds. As far as we know, racial immunity does not exist among Chinese, Japanese, Mexicans, Negroes, the North American Indians or any other race. There are examples of individual immunity in which immunity is relative rather than absolute. Blonds and brunettes are both affected in large proportions. Females are apparently more susceptible than males. According to one writer, fat people are more susceptible than thin people. Age may influence immunity. There is no proof, however, that children as a class are more susceptible than adults. In the same individual the degree of immunity may vary or may remain constant. The degree of immunity is probably influenced by the condition of the health and the condition of the skin. Natural immunity may be due to: the thickness of the skin and the condition of the dermal glands, phagocytosis, natural antitoxin, lack of a suitable solvent or receptors for the poison, and an absence of substances in the tissues that increase the toxicity of the poison.

Pfaff, in 1897, administered toxicodendrol to rabbits per os, and noticed that it caused nephritis and death of the animals. Gord, in 1907, reported similarly. McNair, in 1907, reported one case in which a rabbit was given the sap of *Rhus diversiloba* per os which caused albuminuria.

ALDERSON AND PRUET: **Poison Oak Dermatitis.** *California State Journal of Medicine*, May, 1921, xix, No. 5, p. 188.

Rhus diversiloba belongs to the same family as the "poison ivy" (*rhus toxicodendron*). Early investigators thought that the active poison was a microorganism, and it was therefore for a while believed to be a volatile acid. Syme (*Johns Hopkins Univ. Bull.*, 1906) concluded that it was a non-volatile glucoside containing rhumose, fisetin and gallic acid. This is, today, the accepted belief.

Von Adelung (*Arch. Int. Med.*, 1913, xi, p. 148) proved experimentally that the poisonous agent was not volatile. Those cases of dermatitis having arisen from being near the plant, but not in direct contact, probably result from transmissions of the poison by pollen

or leaf hairs which do not contain the same but may take it up by contact with other parts of the plant but not in direct contact. Toxin may be contained in the smoke when the plant is burned. Many individuals are resistant, but none are immune. In 1917 McNair (*Journ. Cut. Dis.*, June, 1918, xx) proved that serum from lesions of this disease will not produce a dermatitis. He proved (*Journ. Chem. Soc.*, Jan., 1921) that poisoning occurs only through actual transference of the active principle to the areas affected. He gives an extensive account of media of transmission. In California individuals often claim that their immunity was induced by eating the leaves and small twigs of the plant, which procedure made them very sick for a few days, if they drank a "soup" made from the plant. This was used by an engineering outfit in the mountains. The dermatitis had been so frequent and severe, that the surgeon feared that work could not be continued. The men then took to drinking the "soup" and the number of cases became much reduced. Dr. Strickler (*Journ. Cutan. Diseases*, June, 1918) prepared an extract of the poison and used it at a U. S. Army Hospital. Usually the acute symptoms, in his cases, were ameliorated within forty-eight hours after intramuscular injections of 1 c. c. of the solution. This treatment was very popular among the men.

The authors have used this extract with often striking results. It was injected 1 c. c. intragluteally or in the deltoid. Also a preparation of George Broemmels was used. Swelling and itching usually subsided within twenty-four hours. Local irritation is not much, as a rule. If a nodule forms, when the fluid has worked its way along the needle, it is slow in subsiding. Sometimes a second and third injection was given. But lesions in other parts, in such cases, would indicate an overdose. It seems that some patients become immune by these inoculations.

The author reports on 34 cases.

The poison oak was prepared as follows: "A given weight of fresh crushed leaves of *rhus diversiloba* was covered with absolute alcohol, extracted, filtrated and precipitated, and the precipitate dried at low temperature. A given weight of the toxin was dissolved in absolute alcohol and sterile water added. An arbitrary standard was set for the weight of the toxin, volume of absolute alcohol, and the volume of sterile water, but it is hoped to standardize the preparation soon.

TOBEITZ, A.: **Etiology of Infectious Diseases** (Zur Ätiologie der Infektionskrankheiten). *Archives für Kinderheilkunde*, 1921, lxi, H. 3-4, p. 185.

The author is of the opinion that by no means all cases of infectious diseases, such as dysentery, infectious enteritis, influenza, measles, parotitis, tuberculosis, typhus exanthematicus, cholera, varicella, variola, rubella, pertussis, malaria, meningitis, etc., can be explained by direct or indirect contact contagion. He found the large overcrowded hospitals during the war, where hygienic conditions and supervision could not always be kept up, that the number of hospital infections has always been less, by far, than would be expected, under the prevailing conditions. He furthermore has found that the patient with infectious disease was not as dangerous to his surroundings, as is generally accepted, and that there must be other agents, besides direct and indirect transmission. He does not think that the number of bacteria carriers is as large as is generally accepted. He looks for causes of infection in the own body of the individual and his surroundings.

He is of the opinion that microorganisms, constantly living as saprophytes and parasites, may acquire specific toxic character, and cause infection to the individual and his surroundings, and that this change is due to perverse metabolism. The condition of the microorganism is dependent upon the condition of the blood, secretions, and excretions of its host. This will explain isolated sporadic cases of infectious disease. Scarlet fever has been often seen subsequent to burns, where no contact with other cases of scarlet fever could be traced.

OCHSNER, A. J.: **Pernicious Anemia**. *Surgical Diagnosis and Treatment*, 1921, ii, 541.

Before treatment is begun we should employ every known means to discover the possible existence of some factor which may produce a clinical picture resembling that of pernicious anemia. The stools should be carefully examined for parasites. The Wassermann test should be done. The complete cure of pernicious anemia by medical means has never been attained. The chief aim has been to abort ex-

acerbations and prolong remissions. Absolute rest in the treatment is essential. Rest, together with an abundance of fresh air, a liberal and nourishing diet will often produce a decided improvement. With regard to drugs the majority of physicians rely on the various arsenic compounds and large doses of iron. Fowler's solution is usually employed and should be given in large doses. Salvarsan has been given with no very positive results. In the author's experience the intramuscular injection of iron arsenite has been followed by very satisfactory improvement in some of the severest cases. Other methods of treatment such as oxygen inhalation, ingestion of bone marrow, thorium X, have no advantage over the arsenic therapy. Paresthesias are common. Frequent occurrence of signs and symptoms of involvement of the central nervous system are mentioned; there is no mention of nerve degeneration in the leg.

MINOT, G. R.: Chronic Hemolytic Anemia. "The Pernicious Anemia of Pregnancy." *Medical Clinics of North America*, May, 1921.

A woman, 28 years of age, was eight months pregnant. Two and four years ago she had two healthy children. She had no abnormal symptoms or physical signs during these pregnancies. No family history of anemia. Father, mother, brother and sister all living and well.

Ten years ago she had an attack of acute appendicitis and the appendix was removed at that time. Then tonsils were removed one year ago, as she frequently suffered from mild colds and sore throat. She had measles and chicken-pox as a child. During this pregnancy there had been more nausea than she had in her previous pregnancies. At the end of the third month she became tired and pale. Since then she has grown weaker. For the last six weeks she had had dyspnea on exertion. For two weeks insomnia and night sweats, numbness of hands and feet, especially when cold. Five weeks ago, loss of about 3 ounces of blood from the vagina.

Physical Examination.—Patient, pale light saffron, especially on the trunk. Pulse average 100 per minute. She seems bright and cheerful. Heart: soft systolic murmur at the base. Systolic blood-pressure 120, diastolic 80. Urine shows trifling amount of albumin. Blood: Hemoglobin 45 per cent. Red cells 3,100,000 per cu. mm.

Color index 0.7+. Hematocrit shows 21 per cent cells and 79 per cent plasma. The red cells are definitely abnormal, moderate variation in size, smaller average than normal, all polychromatophilic cells, the large ones of which are round. True microcytes are present but rare. Occasionally there is some evidence of fragmentation and tailing of cells. Shape is not often markedly abnormal. One finds numerous long, narrow, round-ended red cells.

Reticulated cells are 16 per cent, while polychromatophilic cells occur as frequently as 3 to 4 to an oil immersion field. Rarely fine stippling occurs. The stain is taken unevenly, some distinctly grayish, the rest greenish. True blasts occur; three were found in counting 300 white cells.

	<i>The case</i>	<i>The control</i>
Hemolysis begins.....	0.54% NaCl	0.42% NaCl
Hemolysis marked.....	0.44% NaCl	0.36% NaCl
Hemolysis complete.....	0.32% NaCl	0.30% NaCl

The serum is yellow and gives a positive Gmelin test. Excess of bile pigment is not Wassermann negative.

The patient looks as if she had primary pernicious anemia. Both this is rare, below thirty, and soreness of the tongue is absent. The blood examination contradicted pernicious anemia; but there is increased blood destruction. There are numerous varieties of hemolytic anemia, the acute hemolytic from certain poisons, sepsis, etc. However, acute hemolytic anemia may be due to sepsis of the endometrium in relation to pregnancy. Then the hemoglobin may fall to 50 per cent in a week's time. The acquired, congenital and familial forms are known as chronic hemolytic jaundice; there the purest type of chronic hemolytic anemia occurs. The exact cause is unknown. Typically a patient presents a history of a very gradual onset of anemia with acholuric jaundice, fluctuating in intensity for some years. The spleen fills the left upper quadrant and the blood changes are similar to those of this patient. Splenectomy has a good influence, other forms of treatment are essentially of no value. Such cases may give a history of some previous infection as malaria and sometimes syphilis, while some cases occur associated with some septic process.

In pregnancy the prognosis is more favorable than in the chronic idiopathic type. This pernicious anemia of pregnancy is distinct from other pernicious anemia. It usually comes on gradually over

a period of months, with an increased intensity over a few weeks. "Termination of pregnancy has permitted cure", but cases have been reported where the process did not stop. The mortality in literature, which does not define the cases clearly, is 60 per cent. The author thinks this is giving it too high. He saw five recover, and one died a few months after delivery; then the hemoglobin was 25 per cent. In some cases sepsis combined with a toxin resulting from pregnancy may have a severe action. The uterus should be emptied, if anemia becomes severe. If hemoglobin is above 50 per cent one may wait a few days or weeks.

This patient was fully well, when seen 9 days after delivery.

MEGGENDORFER, F.: **Clinical and Genealogic Studies on Moral Insanity** (Klinische und Genealogische Untersuchungen Ueber Moral Insanity). *Zeitschrift für die gesamte Neurologie und Psychiatrie*, April, 1921, lxvi, p. 208.

Prichard, who was the first to use the term moral insanity, applied it to "a morbid perversion of the natural feelings, affections, inclinations, temper, habits, moral disposition and natural impulses." He considered it a psychic disease in which there was no noticeable decrease of the functioning of the intellect. In Germany the expression was later used for designating moral deficiency, and in this publication the author takes it in the sense of moral deficiency, moral feeble-mindedness, moral defective and psychopathic anti-social behavior.

The moral insanity syndrome may occur in various diseases, for many diseased conditions may induce anti-social action. The author makes an attempt to classify it under the heads of "affect-epilepsy" and "parathymia". Cases of moral deficiency due to surroundings, manic depressive dementia or genuine epilepsy, congenital syphilis and rickets have been eliminated.

These patients with "affect-epilepsy" cause much trouble in school. They are often intelligent, but restless and adventurous. They exaggerate, lie, malingers, and may have epileptiform attacks. Symptoms of petit mal, depression and roaming habits are common. Often hysterical symptoms or physical signs of hysteria are present.

Among the ancestry of these patients there are found excitable

psychopaths, people who run into debt, thieves, alcoholists, people without any character. The author did not, however, find any insane or epileptics in their immediate ascendancy. In a few cases there was an immediate relation to hysteria.

Many of these patients have been benefitted by treatment in the asylum for ten and more years. There is great danger from alcoholism. The "parathymic" patients at first develop mentally and physically as would be desired, but these children are obstinate and untruthful, or they may be very sensitive and unduly attached to their parents. They at first score well in school, but later they do not do so well. In the upper grades they grow inattentive and negligent. They resist discipline and become restless and naughty. They often shun their fellow-students, and are by them considered treacherous. They look pale and are addicted to onanism. They are sexually premature, and are versatile, the young girls being easily seduced. Then the intellectual faculties cease altogether. They are impudent and unruly toward their superiors. Relatives previously loved will be abandoned. They are amiable toward strangers, overdress and appear to be society men. Luxury gets them into debt, forgery, etc.

Very often, on entering the asylum, they are sensible, and hallucinations and delusions are not at once found, but later fleeting hallucinations may be observed. Attention and memory are not much disturbed. Their course of thought is unstaple and confused. Knowledge is usually good but more often superficial. Emotions are mostly shallow, and the patients are conceited. They may have a queer smile, give evidence of salivary flow and display a habit of making faces.

Among their fellow asylum inmates they like to brag and be the center of interest, and after being dismissed will go farther down in the social scale.

The author found a large percentage of dementia precox among the brothers and sisters and in the ascendancy of moral insanes. Their relatives are often schizophrenes. The author thinks that the loss of consideration, love of relatives, and the social inability leads to a mental and intellectual enfeeblement.

AIKINS, W. H. B.: Radium in Toxic Goiter. Its Treatment. *Indian Medical Gazette*, 1921, lvi, 65.

Twelve years of experience have convinced the author of the value of radium treatment in goiter. Robert Knox says (*Radiotherapeutics*, 468) that in acute cases the treatment by radiations must be supplemented by (a) rest in bed, (b) dietetic treatment, and (c) treatment by drugs. The combined treatment is always more efficacious than either alone. Patients are urged to eat very little meat, but to take plenty of other nourishing food. The use of an ice-bag over the heart, capsules containing quinin hydrobromate, grain 5 (.324 gram) t. i. d., together with ergotin, grain 1 (.065 gram), t. i. d., are recommended, —as is a mixture of strontium bromid with a bitter tonic and salines in the morning, to ensure free elimination. In conjunction with the use of radium as described, this treatment has been effective. In applying radium over the thyroid gland, the effect required is one of deep penetration with a minimum skin reaction. In order to attain this result, the radium should be so screened as to prevent the action of the short but powerful beta rays, and to obtain the benefit of the more penetrating gamma rays. If the case is very far advanced, that is, if there is extreme nervousness and weakness the patient is treated in a hospital, and the radium is left in position for long periods of time. Less severe cases are treated in the office for shorter periods of time.

The first course of treatment is usually the heaviest, and varies from 150 to 360 mg. hours according to the severity of the disease. Subsequent treatments range from 50 to 150 mg. hours varying with apparent progress which the disease has made. Boggs (*Amer. Jour. Roentgenology*, Dec., 1919, p, 613) tried x-ray treatment of a goiter occurring during adolescence merely for cosmetic effects and was surprised at the great benefit obtained in the psychic as well as physical field. The author considers radium to have many advantages over x-rays. He quotes Dawson Turner (*Edin. Med. Jour.*, Feb., 1919). As compared with x-rays in the treatment of this condition, radium has the following advantages: (a) absolutely constant emission of rays, and therefore exact dosage possible; (b) far greater penetration of its rays, so that the deeper parts of the gland are reached; and (c) no noisy exciting apparatus so that the treatment can be applied at the bedside without in any way disturbing the patient.

BAUMBERGER, J. P., PERRY, E. E., AND MARTIN, E. G.: **An Output Study of Users and Non-users of Tobacco in a Strenuous Physical Occupation.** *Journal of Industrial Hygiene*, May, 1921, iii, No. 1, p. 1.

The authors conclude that smoking has little effect on output rate in the strenuous physical occupation studied by them. Chewing markedly lowers output rate in strenuous physical occupation. Light smokers have a slightly lower output rate than heavy smokers in this strenuous physical occupation.

The material was collected among workers on bottle machines. The fact that light smokers have a lower output rate than heavy smokers is difficult to explain but may be an indication that insufficient use of tobacco has more deleterious effects than a larger use might confer. This explanation is entirely a surmise.

SECTION ON LABORATORY AND RESEARCH

RUBENSTONE, A. I.: **Newer Laboratory Methods in Diagnosis and Prognosis of Diseased Kidneys.** *New York Medical Journal*, 1921, cxiii, 196-197.

The indigo carmin test, the phlorizin test, cryosecopy of blood and urine, all have had their vogue, but have been practically abandoned because of the meager amount of information one could obtain from them. The phenolsulphonaphthalein test of Rowntree and Geraghty is probably the only dye test that does possess virtue in estimating kidney function, but its scope is limited. It is a very good method of estimating the kidney function for the moment but it does not indicate the condition of the kidneys when objectionable constituents are retained for a long period of time in the body, so that the test fails to show accurately metabolic changes in the system so far as nonprotein nitrogen retention is concerned. It remained for comparatively recent investigators to discover and perfect methods whereby the functional activity of the kidneys could be determined accurately by their ability to excrete substances that were normally permeable thru them. At present, in a normal state of health, the important functional activities of the kidneys are: (1) Nitrogenous secretion, (2) their ability to prevent acidosis by elimination of acids, and retention of alkalies, and (3) water and total solid excretion. Kidney embarrassment in function is evidenced by impairment in excreting urea, so that blood retention of urea is brought about. In the very severe types of nephritis, creatinin is withheld and the blood shows an excess of this substance. Therefore, it is quite possible to estimate the degree of organic change in the kidneys by the quantitative retention of these nitrogenous substances in the blood when in some instances the urinary changes are exceedingly scant, and at

times entirely absent. When kidney function is impaired, acidosis in various degrees supervenes, and can be determined by the carbon dioxid tension in alveolar air, carbon dioxid combining power of blood, and by estimating the quantity of accumulated inorganic phosphates in the blood. The estimation of variation in water and total solids excreted (estimated by specific gravity changes) is easily accomplished by the renal test meal of Mosenthal and Lewis' and by the Ambard coefficient. These various means are such accurate indices of true nephritic impairment that in the cases which show symptomatology of mixed cardiac and renal disease, one can differentiate between a true renal condition and a secondary one, as in the latter class of cases almost uniform negative results are obtained in retention tests.

BLOOMFIELD, A. L.: **The Mechanism of the Bacillus Carrier State with Special Reference to the Friedländer Bacillus.** *American Review Tuberculosis*, January 1921, iv, No. 11, 847.

The author's conclusions are:

- (1) Of 85 unselected individuals, 5.8 per cent were found to be carriers of the *Bacillus Friedländer*.
- (2) The carrier state persisted throughout the period of observation.
- (3) There is no tendency for contacts to acquire the carrier state.
- (4) Differential cultures showed the breeding place of the *Bacillus Friedländer* to be the tonsil.
- (5) The carrier's own strain or a foreign strain of *Bacillus Friedländer* implanted upon the free surfaces of the mucous membranes disappeared at the same rate of speed as in a noncarrier.
- (6) It was impossible artificially to produce a carrier state by repeated inoculation with *Bacillus Friedländer*.
- (7) The general conclusions of these observations is that the carrier state depends upon a focus of diseased tissue which affords a breeding place for the bacteria. The organisms do not become adapted to growth on the free surfaces of the mucous membranes.

C. A. SCHMID.

WILLIS, H. S.: Studies on Tuberculous Infection. VIII. Spontaneous Pneumokoniosis in the Guinea Pig. *American Review of Tuberculosis*, v, No. 3, p. 189.

The author summarizes his extensive article as follows:

(1) There are anatomic differences between the lungs of old and those of young guinea pigs. These differences concern themselves chiefly with a larger amount of lymphoid tissue in the older animals. The increase in the amount of this tissue apparently parallels the increase in age and in dust content.

(2) Spontaneous pneumokoniosis occurs in guinea pigs that have lived a cage life for a year or more.

(3) The pigment is laid down under the pleura in spots and lines which mark off the secondary lobules. It is also found in the walls of bronchi and blood-vessels, in lymph-nodes and lymph masses throughout the lung. In the tracheobronchial nodes it is present in considerable quantity. Practically all of the dust is intracellular.

(4) Lymphatics transport the dust cells but these vessels on section usually appear empty.

(5) A very slight fibrosis occurs in the tracheobronchial nodes, the pleura and the walls of alveoli that are in the regions of the dust deposits.

C. A. SCHMID.

HUNTOON, F. M., MASCUCCI, P., AND HANNUM, E.: III. Chemical Nature of Antibody. *Journal of Immunology*, March, 1921, vi, No. 2, p. 185.

Conclusions.—(1) The antibody molecules are of large size not being dialysable, indicating the colloidal nature of the substance.

(2) Antibodies are not affected by trypsin over considerable periods indicating that either they are not protein in nature, or belong to the peptid group having a carboxyl-amino linkage.

(3) Antibodies are not precipitated by solutions containing little or no electrolyte content, indicating that they are not of a euglobulin nature.

(4) Antibodies are not soluble in ether, therefore are not of the lipin group.

(5) Antibodies free from any gross amount of globulins are not precipitated or affected by a short exposure to 30 per cent sodium chlorid solution, indicating that they are not of a pseudoglobulin nature.

(6) Antibodies are not injured by certain dilute alkalis or acids.

(7) Antibodies are not affected by temperature up to 60° C. (140° F.).

We may state therefore that antibodies do not belong to that group of proteins usually called serum proteins.

W. LINTZ.

HUNTOON, F. M.: **Antibody Studies. I. Reversal of the Antigen-antibody Reaction.** *The Journal of Immunology*, March, 1921, vi, No. 2, p. 117.

Conclusion.—Although complete reversal of the antigen antibody reaction may be impossible, there is abundant proof of the possibility of an incomplete or partial reversal enabling the production of antibody solutions in a more or less pure state.

W. LINTZ.

COCA, A. F., AND KELLEY, M. F.: **VI. A Serological Study of the Bacillus of Pfeiffer. 1. The Etiological Relation of the Bacillus of Pfeiffer to Influenza.** *The Journal of Immunology*, Jan., 1921, vi, No. 1, p. 87.

Conclusions.—Confirming the previous work of Valentine and Cooper a study of 18 cultures of the bacillus Pfeiffer isolated from cases of influenza in different localities and at different times revealed identities in the cultures only when a probability of personal contact existed. On the basis of Park's argument these findings admit of only one conclusion with regard to the rôle of Pfeiffer's bacillus: namely, that that microorganism is not the cause of the disease. An immune serum prepared by the injection of one strain of *Bacillus influenza* was found to agglutinate other strains of that bacillus, but not the one used for the immunization. This was due to the presence of an unusual quantity of a specific inhibiting antibody.

W. LINTZ

HUNTOON, F. M., AND ETRIS, S.: II. The Recovery of Antibody from Sensitized Antigens: Technic. *The Journal of Immunology*, March, 1921, vi, No. 2, p. 123.

Protocol 1.—Dissociation of meningococcus agglutinin by means of a solution of saccharose, shows the number of recovered antibodies varies both in amount and percentage with the amount of serum employed for sensitization.

Protocol 2.—This shows the effect of the employment of distilled water as a dissociation agent with sensitized meningococci. Bacillary agglutinins can be obtained with distilled water in the same manner as with saccharose solution. The presence of salt prevents in large measure such dissociation.

Protocol 3.—Comparison of the dissociation of bacillary agglutinin in a menstruum of salt solution and of distilled water, did not recover as many antibodies as in the previous experiment due to the fact that the antigen employed was not as heavy as in the first experiment and that agglutinating units present were less numerous.

Protocol 4.—Influence of sodium chlorid on agglutinins in dissociation fluids demonstrate that at least some of the bacterial substance held in colloidal suspension in the original extraction fluid was capable of acting as agglutininogen under the proper conditions, and that some of the agglutinins in the original fluid were in such combination as to be no longer available since the final extraction fluid shows a higher titer than the original.

Protocol 5.—This shows the effect of heat on extraction. Heating at 55° C. (131° F.) does not increase agglutinins extracted; 65° C. (149° F.) reduces the number; and at 70° C. (158° F.) almost eliminates the agglutinins.

Protocol 6.—Effect of the addition of ammonium sulphate shows that by use of salting-out methods, solutions practically free from sugar can be obtained.

Protocol 7.—This shows that distilled water splits off large portions of the combined bactericidal bodies and renders them reavailable.

Protocol 8.—This shows that although a difference is noted between the amount of bactericidal antibody removed in salt solution and in distilled water, the difference is not as marked as that seen with agglutinin.

Protocols 9 and 10.—These show that a great number of protective antibodies have been removed from the serum employed and that a definite number appear in the extraction fluid.

Protocol 11.—This shows that not all of the antibody present is precipitated by means of half saturated ammonium sulphate; that distilled water is a better solvent for precipitate than salt solution; and that it is possible to obtain antibody solutions free from all but a trace of sugar and ammonium sulphate.

Protocol 12.—This shows that ammonium chlorid is a better precipitating agent than ammonium sulphate; and that using supernatant fluid of sugar extracting fluid gives distinctly better results than exposure to salt solution at 55° C. (131° F.).

Protocol 13.—This shows that distilled water is a good extraction agent; that one exposure of the sensitized antigen to distilled water does not remove all of the attached antibody.

Protocol 14.—This shows that a large portion of antibody is available in the distilled water employed in making the emulsion as early as five hours.

Protocol 15.—This shows that dextrose is a more efficient agent for the extraction of antibody than distilled water. The presence of extracted bacterial substance is not essential in order that the extracting agent may carry antibody change.

Protocol 16.—This shows that fewer hemolytic amboceptors are regained in salt solution than are regained in salt-free saccharose solutions.

Protocol 17.—This shows that better results can be obtained by sensitization in hypotonic than in isotonic solutions.

Protocol 18.—This shows that the use of antigen heated to 65° C. (149° F.) gives better final results than the use of unheated antigen or of antigen treated by higher temperature.

Protocol 19.—Distilled water for emulsifying the antigen to be employed in original sensitization is favored.

Protocol 20.—This shows dissociation in salt solution and ammonium carbonate proved equal in amount.

Protocol 21.—Reduction of ammonium carbonate content below 0.125 per cent with a consequent reduction in the alkalinity of the product causes the antibody to become unfilterable. The .5 per cent of sodium bicarbonate in salt solution renders the product filterable.

Protocol 24.—This shows that dissociation is much diminished

in the presence of both normal serum and heterologous immune serum and they indicate that the preventive factor is non-specific.

Protocol 25.—This indicates that the presence of calcium sulphate prevents an adequate dissociation.

Protocol 26.—This shows dissociation was always diminished when a considerable quantity of serum was present.

Protocol 27.—This shows that salts precipitated from serum by potassium oxalate were the factors concerned in preventing an adequate dissociation of the combination of pneumococcus antigen and the pneumococcus protective antibody in a menstruum of normal serum.

Conclusion.—All that can be said at present of the phenomenon of dissociation of antibody antigen combination is that apparently it is governed by dilution of the binding salt present and that the nature of this binding salt differs for different antibodies.

W. LINTZ.

HIRSCH, E. F.: **Changes in Leukocytes and Alkali Reserve of Blood in Experimental Infections.** *Journal of Infectious Diseases*, March, 1921, xxviii, No. 3, p. 275.

This is a report of a study made with rabbits with regard to the alkali reserve changes in the blood in experimental infections, with parallel observations of the variation of the number of leukocytes. Living cultures of bacteria were injected intravenously and at short intervals thereafter the animals were bled from the ear vein and the alkali reserve of the whole blood was determined with a portion of the blood, and the number of leukocytes with another portion taken directly from the bleeding vessel. Injections were made with the following bacteria: *Bacillus typhosus*, *Bacillus dysenteriae* (Flexner), *Bacillus coli*, *Streptococcus hemolyticus*, *Streptococcus viridans*, *Bacillus diphtheriae*, *Bacillus pneumonia*, and *Bacillus Welchii*. The conclusions were that the intravenous injection of living bacteria into rabbits usually causes, within a period of from two to four hours, a leukopenia and a diminution of the blood alkali reserve. There may be a short period of alkalinoses. The minimal and maximal alkali reserve levels are reached after a corresponding leukopenia and leukocytosis. Continued low alkali reserve is accompanied by a

persistently high leukocytosis. With the rise to normal of the alkali reserve there is a decline in the number of leukocytes. It is suggested that diminution of the alkali reserve, or the factors associated with this depression, may afford the chemical stimulus necessary for the subsequent leukocytosis.

COWDRY, E. V.: **The Reticular Material of Developing Blood-cells.** *The Journal of Experimental Medicine*, Jan. 1, 1921, xxxiii, No. 1, p. 1.

The bone marrow of guinea pigs was used for this study. Cells were fixed in a solution of formalin and potassium bichromate and stained by the osmic acid method of Kopsch and the uranium silver method of Cajal. At the same time observations were made of unstained and supravitality stained living cells.

The author was unable by the most painstaking observations to observe any reticular material in the living blood-cells, but was able to demonstrate them by the above mentioned staining reactions in the erythroblasts, leukocytes and lymphocytes. The reticulation represents a restricted area of fluidity in the cytoplasm of the cells. The canalicular apparatus containing this material has been compared by Bensley as the physiologic and morphologic equivalent of the vacuolar system of the plant cell.

GATES, F. L.: **II. Preparation of Collodion Sacs for Use in Bacteriology.** *Journal of Experimental Medicine*, Jan. 1, 1921, xxxiii, No. 1, p. 25.

A detailed description is given of a standardized method for making collodion sacs suitable for intraperitoneal incubation and for other bacteriological experiments. These can easily be made in large numbers and can be conveniently handled. The sacs so made are permeable to gases in solution, to organic salts, to dextrose, to certain protein split products which are nutritive to bacteria, and to certain toxic products of bacterial metabolism, but hold back antibodies, unsplit proteins, and formed elements such as bacteria and body cells. The nutrient material from meat infusion broth passed through the sacs with sufficient rapidity to give good growths of

Bacillus typhosus and *Bacillus pyocyaneus*. The pneumococcus grew well over night in a sae of distilled water in a rabbit. Various factors were found to affect the permeability of the membrane, alcohol particularly.

SWIFT, H. F.: IV. **Preservation of Stock Cultures of Bacteria by Freezing and Drying.** *Journal of Experimental Medicine*, Jan., 1921, xxxiii, 69.

An apparatus is described by means of which bacteria may be preserved for a long time by desiccation in the frozen state. The tubes of bacteria are first frozen and are then placed in a desiccator containing glycerol and the whole apparatus is placed in a salt ice mixture until drying is complete. The temperature is reduced to minus 4 or 6. The dried substance has the appearance of dry lather made from shaving soap and is a light flaky spongy substance. Bacteria preserved in this manner retain their cultural, biochemical and immunological characters for prolonged periods.

LUND, C. C., SHAW, L. A., AND DRINKER, C. K.: **Quantitative Distribution of Particulate Material (Manganese Dioxid) Administered Intravenously to the Dog, Rabbit, Guinea Pig, Rat, Chicken and Turtle.** *Journal of Experimental Medicine*, Feb., 1921, xxxiii, No. 2, p. 231.

A suspension of manganese dioxid was used which contained from 0.140 to 0.903 mg. of manganese per cubic centimeter and the particles of which numbered from 2.5 to 5 billion per milligram of manganese and none of which were over 1 micron in size. The suspensions were made under urethane anesthesia and in no instance were toxic effects noted. Large injections were employed and the animals were bled to death by cutting the carotid artery one hour after the injection.

The organs to be examined were removed at once and the manganese was determined in a milligram per 100 grams wet tissue.

The distribution of the manganese particles in these various animals one hour after injection was found to be remarkably constant

in all but the cat, in which the lungs and liver were found to contain equal amounts. In the animals the liver does most of the work and contains from 75 to 95 per cent of the total injected. The cat after twelve hours was found to have accumulated the manganese from the lungs.

This distribution of particulate matter in which the particles are about equal in size to the streptococcus is of the same character as the distribution of streptococci described by Hopkins and Parker.

The experiments described suggest that the animal behaves similarly in the handling of foreign material (particulate) whether protein or inorganic injections are used.

H. M. FEINBLATT.

WADSWORTH, A. B., GILBERT, R., AND HUTTON, A.: VI. **Study of the Classification of Meningococci.** *Journal of Experimental Medicine*, Jan. 1, 1921, xxxiii, 99.

The meningococcus was found to be very variable in its agglutination in immune serum; some strains agglutinate with difficulty in their homologous serum as well as in heterologous serums. The different strains also varied in their action as antigens. To secure more representative strains, the authors consider it necessary to consider the antigenic action as well as the agglutinability of the cultures.

DRINKER, C. K., AND SHAW, L. A.: V. **Quantitative Distribution of Particulate Material (Manganese Dioxid) Administered Intravenously to the Cat.** *Journal of Experimental Medicine*, Jan., 1921, xxxiii, No. 1, p. 77.

The authors found it possible with manganese dioxid to measure the rate of disappearance of particulate material from the circulating blood; to determine the amount removed by the different organs; and lastly, to correlate these findings with histologic observations.

The manganese used was suspended in gum saline and the particles used were none of them larger than one micron. These particles were too small to produce capillary block and were, however, large

enough to be recognized microscopically and could be determined quantitatively chemically.

A series of twenty injections was made on cats to determine the distribution of the manganese throughout the body of the cat after intervals of from 63 to 83 minutes. In 9 of 13 experiments the circulating blood contained no manganese after 18 minutes.

Amounts of manganese dioxid of from 3.9 to 9.8 mg. containing from 10,000,000,000 to 50,000,000,000 particles were injected intravenously and after an hour 90 per cent material was found distributed in the lungs, liver and spleen as follows: lungs, 47 per cent; liver, 38.3 per cent; and spleen, 4.3 per cent.

The experiments indicate that these organs in the cat have vascular epithelium possessing phagocytic power rendering the capillaries permeable to particulate material as well as to gas, liquids and dissolved substances.

COHN, A. E., AND NOGUCHI, H.: **Etiology of Yellow Fever. XIII. Behavior of the Heart in the Experimental Infection of Guinea Pigs and Monkeys with *Leptospira Icteroids* and *Leptospira Icterohæmorrhagiæ*.** *The Journal of Experimental Medicine*, June 1, 1921, xxxiii, No. 6, p. 683.

The tendency for the heart to be slowed in yellow fever is well known. It may slow down to 30 or 40 beats per minute particularly in the early or second stage and may continue slow during convalescence.

Following successful transmission of yellow fever to animals, observations were made of the rate and behavior of the heart in the animals experimentally infected. For comparison with the animals inoculated with *Leptospira icteroids* (yellow fever) a certain number of others infected with *Leptospira icterohæmorrhagiæ* (infectious jaundice) were included in the study.

Electrocardiograms were taken in from 1 to 4 days before inoculation and after that daily.

In eleven animals there occurred a fairly consistent fall in rate either immediately after inoculation or after a delay. In each instance there was a striking fall on the day of death, or during the last few days.

The slowing in all the cases was due to sinus control and consisted in a slowing of the whole heart. This slowing took place during the febrile period in both series of animals, those inoculated with the organisms of yellow fever as well as those inoculated with infectious jaundice.

Complete heart-block occurred in one case and changes in the ventricular complex occurred 4 times.

H. M. FEINBLATT.

GATES, F. L., AND OLITSKY, P. K.: **III. Factors Influencing Anaerobiosis, with Special Reference to the Use of Fresh Tissue.** *The Journal of Experimental Medicine*, January, 1921, xxxiii, No. 1, p. 51.

Experiments were made to determine the suitability of methylene-blue as an indicator of the reduction processes in anaerobic media. Using this indicator, studies were made to determine the part played by the various constituents of the tissue or substances used in anaerobic media, the choice of a seal for culture tubes and the activity and size of kidney fragment best suited for general work.

The authors found vaseline formed an effective oxygen-resisting seal whereas liquid petroleum was of little value. Fresh kidney was found to be an active reducing agent. At least 0.6 gram (.9 gram) should be used per tube. Peptone and dextrose in faintly alkaline solutions acted in the same way.

For the prompt establishment of anaerobic conditions one or more of the reducing substances should be added to the media used (ascitic fluid or dilute serum) and an effective seal such as vaseline or an anaerobic jar should be applied.

McMASTER, P. D., AND ROUS, P.: **The Biliary Obstruction Required to Produce Jaundice.** *Journal of Experimental Medicine*, June, 1921, xxxiii, No. 6, p. 731.

Experiments were carried out upon dogs and monkeys to determine how much biliary obstruction may exist without clinical manifestations.

The blood-plasma was examined for bile retention. The diazo test was used for determining the bilirubinemia and Hay's test for bile salt retention. Man was found to have a high renal threshold for bile pigments whereas in dogs and monkeys a very low threshold exists. These experimental animals never have a bilirubinemia without a bilirubinuria.

Total obstruction was produced in 16 dogs. The resulting jaundice however, was never so marked as that which occurs in the human being under similar conditions. The first sign of obstruction was usually observed during the second or third 24 hours after operation and consisted of a bilirubinuria followed by a urobilinemia.

Partial obstruction was produced in 10 dogs. In 4 of these, seven-tenths of the liver parenchyma was placed in stasis, in 2 about three-fourths, in 2 others four-fifths, and in 2 nineteen-twentieths. Tissue icterus was not observed in any of the cases.

The four animals with seven-tenths liver parenchyma obstructed showed no evidence of bile retention greater than the physiological observed in control animals during periods of fasting. The two with three-fourths liver obstructed showed no bilirubinemia, the occasional presence of pigment in the urine and the presence of bile salts after the first week. The other four animals showed the pigments and salt in both blood and urine but did not develop tissue jaundice.

Experiments upon monkeys gave about the same results.

The amount of biliary obstruction required to produce jaundice in human beings is probably as great as in the experimental animals dealt with. The clinical jaundice observed in association with local liver lesions should be viewed not as the result of local bile resorption, but as due to a general injury to parenchyma or ducts, or to blood destruction.

H. M. FEINBLATT.

KOLMER, J. A., AND SANDS, J. R.: **Chemotherapeutic Studies with Ethylhydrocuprein Hydrochlorid in Experimental Pneumococcus Pleuritis.** *Journal of Experimental Medicine*, June, 1921, xxxiii, No. 6, p. 693.

Ethylhydrocuprein (optochin) hydrochlorid has been shown to be markedly pneumococcidal in vitro and to possess protective and

curative effects in experimental pneumococcus bacteremias in mice. The toxicity of larger doses of the drug prohibits its use in influencing the severity and mortality of pneumonia.

Experiments on pneumococcus meningitis suggested that it may be possible to inject enough optochin into closed sacs to raise the pneumococidal activity of the exudate without danger of absorption of toxic amounts.

Experiments were carried out upon guinea pigs and dogs. Severe suppurative pleuritis was produced and the diluted drug injected directly into the pleural cavities. A total of 0.008 gram ($\frac{1}{8}$ grain) of drug given to a guinea pig within 24 hours after infection had a marked curative influence. A delay of over 24 hours permitted the development of bilateral pleuritis, pericarditis and bacteremia.

Injections of 1 c. c. of 1-55 solution of the drug at varying intervals up to twenty-four hours after the bacterial inoculation usually showed marked curative influence in both dogs and pigs.

H. M. FEINBLATT.

WADSWORTH, A. B.: VI. Comparison of the Potency of Polyvalent Antimeningococcus Serum Produced with Four and Six Representative Strains and that Produced with Sixty Strains, as Determined by the Agglutination Titer. *Journal of Experimental Medicine*, Jan., 1921, xxxiii, 119.

The agglutination test is accepted by the author as the only one that suggests the degree of polyvalency of therapeutic serum. A study was made by immunizing horses. One was immunized with 4 strains, another with six, and another with a stock culture containing 60 strains including the 6 strains used upon the other two horses.

Agglutination tests were made upon the sera of these horses during a period of 18 months of immunization. The agglutination titer was checked up against 70 heterologous strains of meningococci.

The potency of the polyvalent serum was found to be reduced in the animal immunized against the larger number of strains. Immunization against a limited number of representative strains, 4 or 6, carefully selected on account of their antigenetic and agglutination properties, gave a potency that was increased 3 to 10 fold without sacrificing the polyvalency.

HANZLIK, P. J.: **Comparative Effects of Morphin and Alkaloids of the Benzyloquinolin Group on Cardiac Muscle.** *The Journal of Pharmacology and Experimental Therapeutics*, 1921, xvii, No. 6. p. 445.

Using the perfused amphibian heart as test object, the effects of a number of representatives of the benzyloquinolin group of alkaloids were compared with the action of morphin.

Morphin (pyridin-phenanthrone) augmented the tone, temporarily increased but later slowed the rate and shortened the amplitude, while papaverin, chelidonin, hydrastin and narcotin, lowered the tone, slowed the rate and reduced or abolished the amplitude of contractions of the perfused hearts. These effects of papaverin, chelidonin and narcotin agree with those on smooth muscle in various regions and skeletal muscles independent of the innervation, while hydrastin is variable.

Cotarnin hydrochlorid (stypticin) and hydrastinin, which belong chemically to the benzyloquinolin group, possessed actions similar to morphin, the general effects on rate tonus and amplitude of contractions being equivalent to stimulation, although individual variation was encountered. These effects do not always agree with their effects on the smooth muscle of various organs.

Antagonistic effects on cardiac muscle were produced in mixtures and by independent applications of the following alkaloids: morphin and chelidonin, morphin and cotarnin salts, morphin and narcotin, cotarnin and hydrastin, cotarnin and chelidonin, and hydrastinin and hydrastin.

The results obtained indicate various difficulties involved in the correlations of chemical structure and pharmacological actions and the unreliability of classifications derived from limited data. However, a remarkably close agreement in the effects of papaverin, chelidonin and narcotin on different muscles, namely, cardiac, smooth and skeletal, was found to exist.

Therefore, the alleged specificity of papaverin for smooth muscle is not sustained by the results of this investigation. This applies also to chelidonin.

There is no satisfactory proof of the existence of smooth muscle in the walls of the turtle heart, and the hearts of other species (except in blood-vessels) although smooth muscle is demonstrable in the

endocardium, but this plays no rôle in the functional activity of the cardiac muscle.

Consequently the seat of the depressant action of papaverin on the heart of the turtle is not in the smooth muscle of the cardiac wall. The results of the observations in this report are also of value in appraising the importance of the cardiac factor in circulatory collapse resulting from the administration of these drugs or other causes, and their therapeutic value in collapse.

Accordingly, therefore, morphin would not be expected to cause cardiac collapse or injure the heart in collapse by direct action, while papaverin, chelidonin, cotarnin, hydrastin and narcotin would cause cardiac collapse and injure a depressed heart.

C. A. SCHMID.

EMGE, L. A., AND JENSON, J. P.: **The Effect of Benzyl Benzoate on the Leukocytes of the Rabbit.** *Journal of Pharmacology and Experimental Therapeutics*, June, 1921, xvii, No. 5, p. 415.

There are certain outstanding facts which have recurred in most of our experiments and the observation of which would most likely have been missed if our experiments had been limited to shorter periods. These lead us to believe that in rabbits a continuous administration of benzyl benzoate in small doses leads to a leukocytosis which in somewhat larger doses is accompanied by an increase in small mononuclear cells. This leukocytosis is transient and ultimately leads to a mild leukopenia. The behavior of the blood picture suggests that if it is due to some form of benzol or intermediate product, such substance is of importance only after a sufficient amount of benzyl benzoate has accumulated in the system. In large but single doses of benzyl benzoate there is a tendency to change the even rise of leukocytes into a broken curve of a diphasic character with a distinct depression of the polymorphonuclear element. Also here a mild and late leukopenia occurs. Changes are not dependent upon method of administration. In the presence of latent or quiescent infections in rabbits larger doses produce an acute return of the disease. This is accompanied by sharp rises and sudden drops in the total as well as the small mononuclear white blood-cells (actual lymphocytosis). Leukopenia was not observed when the recrudes-

ence was very violent but when the recrudescence was mild there was a suggestion of a late leukopenia. In regard to the red blood-cells and the hemoglobin we found that benzyl benzoate has no or only a very slight depressing influence.

C. A. SCHMID.

HANZLIK, P. J.: **The Liberation of Free Salicylic Acid From Salicylate in the Circulation.** *Journal of Pharmacology and Experimental Therapeutics*, June, 1921, xvii, No. 5, p. 385.

Free salicylic acid is demonstrably liberated from sodium salicylate at a very low degree of acidity, namely, an acidity whose hydrogen-ion concentration corresponds to $\text{pH} = 6.7$; more definitely at $\text{pH} = 6.5$. The presence of 25 per cent serum or plasma in salicylate "buffer" mixtures prevents the liberation of free salicylic acid at the high degree of acidity of $\text{pH} = 5.9$. Therefore, it is improbable that free salicylic acid could be demonstrated in the circulation during life.

This was fully confirmed on animals subjected to fatal asphyxia and whose cardiac and arterial bloods were rendered very slightly acid ($\text{pH} = 6.8$ or 6.9). Consequently the theory that free salicylic acid, liberated by virtue of the greater CO_2 content of venous blood of the right heart, exerts an antiseptic action and prevents the development of a right-sided auricular-ventricular (tricuspid) endocarditis in rheumatic fever is untenable. An explanation of this phenomenon must be sought elsewhere.

C. A. SCHMID.

SQUIER, T. L., AND NEWBURGH, L. H.: **Renal Irritation in Man From High Protein Feeding.** *Archives of Internal Medicine*, July, 1921, xxviii, No. 1, p. 1.

Having previously shown by the work of one of the authors of this paper, that high protein feeding continued over long periods was capable of causing chronic, diffuse, bilateral kidney lesions in rabbits, it was decided to carry out somewhat similar experiments in man. In the first group were four elderly patients showing arte-

rial hypertension, neuroretinitis, somewhat diminished phthalein excretion, some degree of lowering of the specific gravity and fixation, but no marked increase in the blood nitrogenous elements. During the control observations, while on a low protein, salt poor diet, these patients exhibited no red blood-cells in the urine. When fed large amounts of meat there invariably appeared red blood-cells in the urine and in several instances there was an advance of the neuroretinitis or an increase in the albuminuria. One younger patient with an unquestioned nephritis and two others with some signs of renal impairment reacted also with the appearance of blood-cells in the urine. Finally a number of healthy young men were given large amounts of meat over short periods with the result that blood-cells were found in their urine also. The authors conclude from their observations that high protein diet in man is a renal irritant.

T. HOWARD.

MELTZER, S. J., AND AUER, J.: **On the Duration of Constriction of Blood-vessels by Epinephrin.** *Journal of Pharmacology and Experimental Therapeutics*, April, 1921, xvii, No. 3, p. 177.

The rise of blood-pressure is only a circumstantial evidence for the constriction of blood-vessels in some part of the vascular bed which is sufficient to overbalance any other effect. An ocular study of the blood-vessels in the rabbit's ears permits a direct observation of the behavior of all the larger vessels of that organ. The experiments reported in this paper have shown conclusively that a subcutaneous injection of epinephrin in the ear of a rabbit causes a constriction of all the vessels of that ear. The constriction is quite intense; but the outstanding feature is its very considerable duration,—three to eight hours. The rise of blood-pressure from an intravascular injection of epinephrin is at the utmost seven minutes. The latest period which passes between the time of the injection and the onset of the constriction is the longer the farther away the injection is made from the central artery. Injections made near the central artery and on both sides of it cause practically an immediate paling of the entire ear and constriction of the central artery with all its branches and veins. In subcutaneous injections of the ear the epinephrin apparently reaches the muscular sheath through the adventi-

tia and not through the intima from the lumen of the blood-vessels. The ear injected subcutaneously by epinephrin is cold, heavy, and is infrequently moved by the animal. When the constriction passes off the blood-vessels subjected to this effect show later a tendency to the opposite effect, to vasodilatation. A subcutaneous injection of adrenalin in one ear which causes constriction in that ear seems often to cause at about the same time a dilatation in the other ear; dilatation is not of long duration.

C. A. SCHMID.

OLITSKY, P. K., AND GATES, F. L.: I. **Transmission Experiments with Nasopharyngeal Washings.** *The Journal of Experimental Medicine*, February 1, 1921, xxxiii, No. 2, p. 125.

Observations were made over a period of one and one-half years including three periods: first, the period of 1918-19 during which time uncomplicated influenza cases were studied; second, the autumn of 1919 during which period normal individuals were studied as controls; and a third period, 1920, during which time the epidemic was again present and observations were again made.

The diagnosis of uncomplicated influenza was made upon the symptoms of a sudden onset with chilliness, fever, prostration, headache, muscle pains, flush, soreness of throat and dry cough. With this was found a pronounced leukopenia affecting the absolute number of lymphocytes. Saline washings were taken from the nose and throats of 20 cases of influenza and from 14 controls. Rabbits were used, and filtered and unfiltered washings as well as control material, were inoculated intratracheally.

A substance not bacteria or the product of bacteria was separated from the secretions (nasopharyngeal) of patients suffering from acute influenza in the early stage, which inoculated intratracheally, readily gave the symptoms of the acute infection. The substance remains active through a long series of fifteen successive passages in rabbits. This substance was only recovered in the first 36 hours after the onset of the symptoms of the acute infection in man. It was found to filter readily through Berkfeld filters and to increase in the presence of bacteria and to favor the development of the organisms.

H. M. FEINBLATT.

OLITSKY, P., AND GATES, F. L.: **Experimental Studies of the Nasopharyngeal Secretions from Influenza Patients. IV. Anaerobic Cultivation.** *Journal of Experimental Medicine*, June, 1921, xxxiii, No. 6, p. 713.

The paper describes the cultivation experiments on the organisms isolated from epidemic influenza patients. The organism, a filterable minute bacilloid body, was obtained from the nasopharyngeal washings of patients in the first 36 hours of uncomplicated epidemic influenza. This minute body, not of the nature of ordinary bacteria, was also recovered in pure culture from the unfiltered and filtered lung tissue of rabbits and guinea pigs inoculated with unfiltered and filtered nasopharyngeal washings of early influenza cases, from the epidemic of 1918-19 and that of 1920. The organism is a strict anaërobe and can withstand the action of sterile glycerol for months.

Intratracheal injection of mass cultures of these organisms in guinea pigs and rabbits induced effects upon the lungs and blood not distinguishable from those effects produced by the nasopharyngeal secretions of patients in the early hours of epidemic influenza. From the pulmonary lesions induced the same organism was recovered in pure culture, and was found to give similar lesions on subsequent animal passage. Prolonged artificial cultivation did not reduce the pathogenicity of the organism.

This organism seems to be the source of the reactions which occur in experimental animals as a result of the intratracheal inoculation of nasopharyngeal washings obtained during the early hours of uncomplicated influenza in man.

H. M. FEINBLATT.

POVITSKY, O. R., AND DENNY, H. T.: **IV. Further Studies on Grouping of Influenza Bacilli with Special Reference to Permanence of Type in the Carrier.** *Journal of Immunology*, Jan., 1921, vi, No. 1, p. 65.

Four out of 7 influenzal meningitis strains isolated years apart were proved by agglutinin absorption tests to be of one type; the remaining three were of different types. From the respiratory cases,

five strains from different individuals were obtained which were of the same type. No other groups of more than two members were obtained in agglutination tests with any cultures. This was true of the original pandemic and also of the new outbreak strains.

Atypical hemoglobinophilic bacilli were found in 18 cases (normal individuals and cases of cold), and in 5 cases these were found in coexistence with typical influenza bacilli.

About 75 per cent of typical influenza bacilli form indol; from 50 to 60 per cent ferment glucose somewhat irregularly and not energetically.

The indol reactions did not correspond fully among the meningitis group of four serologically identical strains. It was found that strains having the same immunological characteristics had the same cultural reactions.

Many colonies were fished from each of a number of suspected cases and tested with homologous and heterologous serums. In most cases the fishings of influenza bacilli proved to be of one type.

In carriers more than one type variety of the influenza bacillus are apt to be found in the same case.

In convalescent carriers (tests made from several weeks to three months) the original type of influenza bacillus was found.

W. LINTZ.

OLITSKY, P. K., AND GATES, F. L.: Experimental Studies of the Nasopharyngeal Secretions from Influenza Patients. III. Studies of the Concurrent Infections. *Journal of Experimental Medicine*, March 1, 1921, xxxiii, No. 3, p. 373.

It has been commonly noted that influenza, uncomplicated by concurrent infections, recovers quickly while those complicated by organisms such as the pneumococcus, streptococcus, Pfeiffer bacillus, and others run a more intense course. The following experiments were carried out to determine the predisposing effects of the influenza agent on the lung structures to secondary infection.

Pure cultures of the following were injected into a series of rabbits intratracheally.—Type II and Type IV pneumococcus, Bacillus Pfeiffer, and Bacillus bronchisepticus (the last a common inhabitant of the upper air passages in the rabbit). A small number of pneumococci gave very little change, whereas a larger inoculation gave rise to a leukocytosis, septicemia and death with the typical lung

findings. Small doses of *Bacillus Pfeiffer* and *Bacillus bronchio-septicus* like the pneumococcus gave only transient effects which differed, however, from those produced by the influenzal agent. In another series observations were made after injecting the influenzal agent first and then injecting the bacteria intravenously. Where the same doses of the bacteria injected intravenously in the rabbits without the influenzal reagent gave no severe reaction, it resulted in invasion and spread to the lungs and death resulted. The lungs on autopsy showed the typical effects of the influenza agent and the effects of the concurrent infection.

H. M. FEINBLATT.

COOPER, G. M., MISHULOW, L., AND BLANC, N. E.: II. A Study of the Serological Relationships of Pneumococci from the Upper Respiratory Tract with Special Reference to Common Colds and Influenzal Conditions. *The Journal of Immunology*, Jan., 1921, vi, No. 1. p. 25.

The serological relationships of 55 strains were studied. These were isolated from the nasopharynx of normal controls, from cases of rhinitis, and pharyngitis, and also from influenza-like cases. There was no proof that the pneumococcus was the primary agent in contagious types of inflammation. Usually one variety of pneumococcus predominates in the nasopharynx. The fermentative results with salicin and mannite were inconstant and the differences among strains showed no parallelism with the serological findings. Such differences have, therefore, no evident classificatory significance.

W. LINTZ.

SECTION ON PEDIATRICS

RICARD, T. C. A.: **A Case of Dicephalus** (Un cas de dicephala).
L'Union Medicale du Canada, Jan., 1921, i, No. 1, p. 12.

A female child, weighing 10 pounds (French) and born at term had two heads. It was necessary to cut off one of the heads in order to deliver the child. The child was asphyxiated before birth. Dicephalus was diagnosed before birth. The second head had a cleft palate pes equino varus.

KAHAR: **A Double-headed Monster.** *Indian Medical Gazette*, 1921, lvi, No. 1, p. 75.

At the Medical Office, Hangan, the double-headed monster, evidently female, was born, as the eleventh child after ten healthy children. The heads were born simultaneously, six hours after the body appeared. It was born alive and cried. It seems from the picture, that there are six toes on the left foot. Nothing else can be seen with certainty.

RUHRAH, J.: **Benzyl Benzoate in Pediatric Practice.** *American Journal of Medical Sciences*, 1921, clxi, 32, 36.

The first trials of benzyl benzoate were made by the author in the treatment of whooping cough. This disease presents certain peculiarities among which is the notoriously uncertain action of antispasmodic drugs. What quiets one child will have little effect on another. Benzyl benzoate acts fairly well in many cases, lessening the number

of attacks of coughing and so making the patient more comfortable. The action is, however, uncertain. In some instances the relief is striking, while in others it is practically nil. This may be due to lack of knowledge in the dosage, and it may be that in the resistant cases larger amounts would produce the desired effect.

JOUGHLEN, J. L.: The Diagnosis of Some of the More Common Motor Disturbances Met with in Children. *Archives of Pediatrics*, May, 1921, XXXV, No. 5, p. 266.

The author limited by the audience to the nervous conditions in children, states that the great majority do not occur in children.

Taking up the conditions found in children under tremors, he divides them as:

(a) The pre- or more usually post-hemiplegic tremor is not usually of a pure type more often combined with an athetoid or choreiform movement, and is associated with the clinical signs of hemiplegia.

(b) Tremors found in tumors of the brain, located especially in frontal lobe, mid-brain, or cerebellar lesions, and accompanied with the signs and symptoms of cerebral neoplasm. The cerebellar is most common. It has a marked resemblance to that of multiple sclerosis (accompanying it are the following points which resemble multiple sclerosis: the slow tremor, the oscillations of which are of wide range and markedly intentional). In addition though are headache, vomiting, choked disc, nystagmus, slow-scanning speech, and the drunken gait and station of cerebellar disease are one or all evident.

PLEWKA, W.: Pathogenesis of Ulcerative Parotitis in the New Born (Zur Pathogenese der eitrigen Parotitis der Neugeborenen). *Archives für Kinderheilkunde*, 1921, lxi, H. 3-4, p. 279.

Lately a number of publications have been made on sialadenitis, that is the ulcerative inflammation of the salivary glands, prevalent in the new-born and in young children. Among 51 cases of this disease, there was an involvement of the parotic gland in 42.

The microorganisms found by several authors were staphylococcus, streptococcus, *Bacterium coli* and diplococcus. It has not been decided whether the infection was of an ascending type, from the mouth, or occurred by hematogenous metastasis. Auerbach and Ylppoe believe that parotitis constitutes the localization of a general sepsis, and Ylppoe is of the opinion that it starts in the intestinal mucous membrane. Postmortem there is sepsis or pyemia associated with parotitis or with focal disease in other organs. Some writers accept that infection from the mouth enters the ducts. They believe that the glandular system is not yet sufficiently developed, or that the ductus Stensonianus is injured, in wiping out the mouth, or that the salivary function ceases in diarrhea or debility. Histological examination reveals abscesses in the glandular ducts, surrounded by hyperemic granulations. There is salivary hypersecretion, desquamation and subsequent purulent catarrh. There may be a secondary involvement of the parenchymatous structure.

SCHULTZ-BASCHO, P.: Clinical Notes on Bacillary Dysentery During Childhood (Zur Klinik der Bazillenruhi im Kindesalter). *Archives für Kinderheilkunde*, 1921, lxi, H. 3-4, p. 269.

Goeppert, who is well acquainted with infant dysentery, distinguishes between genuine and pseudo-dysentery. The former is characterized by Shiga's bacillus, the latter by the Flexner type, type X. The Flexner and the X type are also considered genuine. The cases without bacillary findings are considered under the head of pseudo-dysentery. Bacteriological examination very frequently fails. In the large group of enteritis infectiosa, pneumococcus and coli bacillus often will be found. This group may be subdivided into dysentery and specific enteritis.

The authoress treated 41 cases, in four of which Shiga, in 8 Flexner, in two Y, and in one Flexner and Y bacilli were found. In 50 per cent the bacteriological findings were positive. Among them were but 6 nursing infants. Most of them were older or even school children. Twelve were from one to three years old. Among these were 4 infants. Among the ones who died Shiga bacillus was found in two, and one had pneumococcus enteritis. In the other 1 bacteriologic examination was negative.

If the children can retain them, atropin suppositories—not too small a dose,—are advisable. Cohnheim recommends morphin-codein 0.1 grain of each to 10.0 aqua, 8 to 10 drops three times a day. Apply warmth. Animal blood carbon was given internally. Dysentery serum seems to have no effect.

The younger the children, the greater was their loss of fluid, so water was supplied per os, per rectum and subcutaneously. Bolus clysmas were given in case of older children. Ringer's solution was not given subcutaneously for fear of edema. The main stress was laid on the dietary regime. Water and salt must be supplied and food containing all vital elements and few ashes. Starvation diet was not kept up above twenty-four hours. If possible, small infants should be given breast milk. Whey, cured, and carrot soup may be given to older children; also meat broth, mashed potatoes, and zwieback soaked.

VARGAS, A. M.: Syncope and Apparent Death in Whooping Cough: Treatment. *Archivos Espanoles de Pediatria*, May, 1921.

The author says little about the actual treatment of syncope but devotes his attention to the description of a routine which in his hands has not only prevented syncopal attacks but has also shortened, almost unbelievably, the course of the disease.

This treatment consists of the local application of asaprol to the pharynx and larynx, phenocol hydrochlorid with dionin by mouth, and intramuscular injections of ether.

He emphasizes the importance of avoiding cough sedatives when the bronchi and aveoli are filled with mucus; this implies the frequent examination of the thorax.

The injections of ether are given intramuscularly in the buttocks, in quantities of from 1 to 2 c. c. (16 to 32.4 minims), daily for six days. There is considerable local irritation which in some cases produces ulceration and even scarring, but the results justify this risk.

The ether treatment was used first in 1914 by Audrain, later popularized by Weil and Dufour of Lyons, and latterly by L. Chenise in 1920.

W. H. DONNELLY.

RAEDER, O. J.: **Feeble-mindedness in Hereditary Neurosyphilis.** *American Journal of Diseases of Children*, March, 1921, xxi, No. 3, p. 240.

A study of 22 children born of syphilitic parentage, reveals varying degrees of syphilitic infection. Those born nearest parental infection show more marked evidences physically, mentally and serologically. Both blood and cerebrospinal fluid tests were done in all. Psychometric tests show corresponding psychic terracing going *pari passu* with the grades of physical defects. Even the youngest children of a luetic family show feeble-mindedness, though of less degree than in the older. The syphilitic injury to the nervous system either projects beyond the physical defect, or by reason of the peculiar reactions of the brain compared with other organs we have a finer indicator in it than in ordinary tissues. Again, although the central nervous system may recover more rapidly in succeeding births as shown by the various tests, the recovery may not be as complete. The author concludes that mental deficiency in congenitally syphilitic children of not feeble-minded parents is in the majority of cases due to syphilis, and that the virulence of the toxins of congenital syphilis in a family as evidenced by psychometric analysis and biochemical tests varies inversely with the order of birth.

T. B. GIVAN.

GRULEE, C. G., AND BONAR, B. E.: **A Peculiar Fever of Infancy Probably Due to Depletion of the Water Reserve of the Body.** *American Journal of Diseases of Children*, March, 1921, xxi, No. 3, p. 220.

The authors account for fever occurring in infants, in whom a central nervous or bacterial origin can be practically excluded, by a reduction of the water content of the body. Cases are reported to substantiate this belief. Infants fed on thick cereal pastes without fluids rapidly develop fever. The specific gravity of the blood of these infants is raised on the same feeding. The fever and the specific gravity is readily lowered by the administration of fluids, even by the stomach. They think that fevers, heretofore unaccounted for, as in teething, vomiting, etc., are thus accounted for by dehydration.

These temperature elevations are not accompanied by toxic or gastrointestinal symptoms. This brings up the question whether it is a wise procedure to use thick cereal feedings in the treatment of severe vomiting conditions in infancy, as is being done in the case of pyloric stenosis, pylorospasm and rumination.

T. B. GIVAN.

SCHLOSS, O. M.: The Nature of the Reducing Substance in the Urine of Infants with Nutritional Disorders. *American Journal of Diseases of Children*, March, 1921, xxi, No. 3, p. 211.

Observation of 82 patients, all of whom were affected with severe nutritional disturbances characterized by diarrhea, refusal of food, vomiting, or loss of weight, and most of whom showed toxic symptoms, revealed a reducing substance in the urine which was calculated to be glucose, varying from 0.12 to 2.1 per cent. One hundred ninety-six specimens of urine were examined. That of 63 infants reduced Benedict's qualitative reagent, Bretrand's method or the micromethod of Benedict and Osterberg. The glycosuria in these cases was of short duration, so that repeated examinations of the reducing substances in the urine of the same patient is often impossible. Usually it occurs only during the acute illness of the patient, death or improvement taking place within a few days. With improvement the glycosuria diminishes markedly and subsides. The duration of the glycosuria varies greatly, but in most cases covers a period of from one to four days. The short duration of the sugar elimination in this variety of cases is in marked contrast to the continuous glycosuria associated with the regular ingestion of large amounts of sugar. The sugar is not lactose, but glucose or galactose, since the main portion of the reducing substance is fermentable. The cause of this form of glycosuria has not yet been determined.

T. B. GIVAN.

BARRIO, N. G.: Treatment of Pinworms by Bismuth Carbonate. *Archivos Espanoles de Pediatria*, January, 1921.

The writer was interested by the accidental discovery by Loeper of the United States that large doses of bismuth had a pronounced

value in the treatment of pinworms, and reports a case of a most stubborn character which yielded to this form of treatment.

Not only did the parasites themselves, both in this case and in those described by Loeper, disappear but also their ova. The technic of the treatment is simple and apparently no bad effects result from the large doses of bismuth employed. An exclusive milk diet is followed for a week, then for three days two powders daily are administered, each consisting of 5 grams (77.16 grains) of bismuth carbonate. The next day a brisk purge of calomel and rhubarb is given which expels quantities of the worms. The rest of the treatment consists of a daily enema of the chlorid of iron and the anointing of the anal region with mercurial ointment, for several days.

W. H. DONNELLY.

DURAN, A. L.: Osteosynthesis in the Treatment of Pott's Disease. *Archivos Espanoles de Pediatria*, January, 1921.

The writer considers that in adolescents and adults with Pott's disease who have an early lesion, without a true abscess formation, without kyphosis or with a limited kyphosis, osteosynthesis is the treatment indicated, inasmuch as it carries out with advantage the conservative method. On the other hand, the patients with dorsal or dorsolumbar kyphosis of any moment, after this operation have not acquired any great capacity for work; further, recurrence or augmentation of the kyphosis is often the end result. It must be remembered that these operative cases require a long after treatment, during which they must use orthopedic appliances; until radiography confirms good bony fusion they should not be allowed to resume their duties or occupation.

W. H. DONNELLY.

JUARISTI, V.: Metameric Verrucosis. *Archivos Espanoles de Pediatria*, January, 1921.

The case reported was that of a female child who fifteen days after birth became afflicted with a series of warty growths which followed the distribution of both the cranial and the spinal nerves on

the right side, starting in the median line behind and continuing to the midline in front. The condition after three years has disappeared from the face and is beginning to do so on the trunk. There was no sensory or motor disturbance at any time. Juaristi believes that some endocrine deficiency, acting through the sympathetic is the underlying etiological factor.

W. H. DONNELLY.

TALBOT, F. S.: **Standards of Basal Metabolism in Normal Infants and Children.** *American Journal of Diseases of Children*, 1921, xxi, 519-528.

In order to establish the normal basal metabolism of infants and children, a series of investigations by Benedict and Talbot on 258 normal infants and children were carried on over a period of ten years and recently have been reported (Benedict and Talbot: *Metabolism and Growth from Birth to Puberty. Carnegie Institution of Washington*, Publication No. 302, 1921). Six charts represent the basal metabolism of normal infants for the first two years of life. During this early period of life the changes in the metabolism are so great that the results have been plotted in months rather than in yearly periods. The metabolism of the new born infant, that is during the first few days of life, requires special standards. The average metabolism per twenty-four hours is as follows: Total=142 calories; per kilogram of body weight, 42 calories; and per square inch of body surface, 612 calories (Benedict and Talbot: *The Physiology of the New Born Infant. Carnegie Inst. of Washington*, Publication No. 233, 1913). The metabolism of the new-born infant may be computed very closely by the formula of Benedict and Talbot. To determine the basal metabolism of adults it is necessary for the patient to be in the "post absorptive state," which occurs about twelve hours after the last meal, to have a normal temperature, and to be in absolute physical repose. In infancy, on the other hand, the determination of the basal metabolism is complicated by the fact that the infant must be fed in order to keep it quiet over the necessary period. Determinations of the basal metabolism of infancy and childhood have been made for the most part a respiratory chamber. Studies of the basal metabolism have shown that sex in-

fluences the height of the basal curves in children. The variation due to sex is less marked in infancy than in later childhood but enough variation is found during this period to warrant the plotting of separate charts for each sex. It is necessary to know what are the normal variations of metabolism, and what factors lead to these variations. This would be very simple if all normal children of a given age were of the same weight, height and physical conformity. If this were so, their basal metabolism would, in all probability, fall within 6 per cent of the average curve. The physical development of growing normal children however, varies within wide limits, and consequently, variations occur in their basal metabolism. Children who are above the average height and weight for the age and who have a normal amount of muscle and fat are found to have a basal metabolism of more than 1.0 per cent above the average for the age, but within the 1.0 per cent variation when applied to the total metabolism for their weight and per unit of body weight and body surface. On the other hand, a child that is of normal development but small for the age, has a total metabolism of more than 10 per cent below the metabolism for the age but within 10 per cent of the total metabolism for the weight and per unit of body surface and body weight. In both these instances, the total metabolism conforms with the expected metabolism for the weight but not for the age. Secondly, children who are of average height but over-weight have a total metabolism which usually falls within the average limits for the age and per unit of body surface. Those who are fatter than the average have a metabolism per kilogram of body weight below the 10 per cent variation, and those who are thinner than the average are more than 10 per cent above the average, the extent of the variation depending upon the relative amount of body fat. This is, in all probability, due to the fact that fat is an inert substance in so far as the energy metabolism is concerned. Thirdly, in children that are both large and fat, the total metabolism tends to fall within the average limits for the age, but the metabolism per unit of weight and per unit of body surface falls below the 10 per cent variation; while those children who are small and thin fall above the 10 per cent variation per unit of weight and per unit of body surface. The metabolism per unit of body surface is less affected in these comparisons than the metabolism per unit of body weight.

Charts are shown with total calories of two-year old children, re-

ferred to age; and calories per kilo referred to age; calories per square inch referred to age; total calories in twenty-four hours at different weights, projected from 32 kg. upward; calories per kilo referred to age, the curve being projected from 12 years upward; and calories per square inch referred to age, from 12 years upward.

INTERNATIONAL MEDICAL DIGEST

Vol. 11

NOVEMBER, 1921

No. 11

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	962
Section on General Medicine - - - - -	963-1000
Section on Laboratory and Research - - - - -	1001-1020
Section on Pediatrics - - - - -	1021-1026
Roentgenology and Electrotherapeutics - - - - -	1027-1040
Neurology and Psychiatry - - - - -	1041-1056
Analytical Table of Contents - - - - -	i-iv
Index of Authors - - - - -	v-xxxiii
Index of Subjects - - - - -	xxxiii-xciv

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

Subscription Rate, \$10.00 Yearly

Copyright, 1921, by W. F. Prior Company Inc.,

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
ROBERT A. COOKE
H. B. CUSHING
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON

DAVID J. KALISKI
HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES K. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
EDWARD B. VEDDEE
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

NOVEMBER, 1921

No. 11

SECTION ON GENERAL MEDICINE

KRAFT, A., AND LEITCH, N. M.: **The Influence of Morphin in Experimental Septicemia.** *Journal of Pharmacology and Experimental Therapeutics*, June, 1921, xvii, No. 5, p. 377.

Morphin-sulphate given in 0.03 gram (0.5 grain) doses which is about one-sixth to one-tenth fatal dose lowers the resistance of rabbits toward septicemia produced by the *Streptococcus hemolyticus*. Morphin sulphate given as above lowers the temperature of rabbits. In the administration of morphin at least two effects should be considered: First, the sedative action of morphin; second, the influence of morphin on the course of infection. The harmful influence of morphin is probably due to a number of factors, such as inhibition of phagocytosis, increase in intestinal stasis, with the increased production of toxins, and a general depression of the body temperature, of metabolism and the body defense.

C. A. SCHMID.

LEON, N.: **A Case of Urethral Myiasis.** *Journal of Parasitology*, June, 1921, vii, No. 4, p. 184.

In July, 1920, a student, aged 22, presented himself and said that he had urinated eleven worms the night before. Some days before he had felt tickling sensations which led to erections and even to ejaculations. On microscopical examination the specimens were recognized as normal larvae of *musca domestica*, about 6 mm. long.

Certain authors have claimed that life was impossible in the urethra or bladder on account of lack of air. However, it is evident that these larvæ find in these organs biological conditions indispensable to their existence and development.

On the following day the author asked the patient to press the penis tightly at the base, whereupon he felt a tickling sensation, experienced an erection and with a quick-following ejaculation passed eight fly larvæ in the sperm, resembling in every respect the ones he had brought in the day before in alcohol.

Following blennorrhagia about a month previous the patient had made medicinal injections and had noticed a mucopurulent discharge for some time thereafter. Quite likely, as in a previous case of the author in 1898 and in the case of R. Chevrel, flies had been attracted by this discharge and had deposited their eggs in the neighborhood of the urinary meatus, and larvæ had penetrated into the urethra and perhaps even into the bladder. This was an absolutely true instance of urethral myiasis.

CECIL, R. L., AND STEFFEN, G. I.: **Acute Respiratory Infection in Man Following Inoculation with Virulent *Bacillus Influenzae*.** *The Journal of Infectious Diseases*, March, 1921, xxviii, No. 3, p. 201.

During the last two years a number of investigators have tried to produce influenza in man by direct inoculation of *Bacillus influenzae* into the healthy nose and throat. Almost without exception these efforts have resulted in failure. It will be observed from the literature, however, that the strains employed, with two exceptions, were isolated from healthy individuals or from cases of measles, and whooping-cough. The cultures were all subject to artificial cultivation for weeks or months before inoculations were made. Finally it has been shown that strains of influenza bacilli differ greatly in their virulence. Recently Blake and Cecil have shown that by inoculating the nose and throat of monkeys with a culture of *Bacillus influenzae*, made virulent for the species by repeated intraperitoneal injections, an acute infection of the upper respiratory tract may be induced which is quite similar to influenza in man. If monkeys could be infected so readily with a virulent strain of *Bacillus influenzae* it seemed reasonable to suppose that by use of proper methods a

similar experimental disease could be produced in man. The experiments reported in this paper were undertaken with such an object in view. The volunteers selected were healthy adults. Of the six inoculated with *Bacillus influenzae*, three gave a history of influenza during the 1918-1919 epidemic, the other three denied having had the disease. Preliminary cultures from the nose and throat were taken to eliminate influenza carriers. In addition to the six volunteers inoculated with influenza bacilli, six other volunteers were selected for control inoculations. Two of these received the filtrate from a chocolate blood broth culture of *Bacillus influenzae*; two were inoculated with a virulent *Streptococcus hemolyticus*; and the remaining two were tested with a group IV pneumococcus. All volunteers were kept under close observation during the period of the experiment. Temperature, leukocyte count and cultures were frequently taken and the subjects carefully examined twice a day for any local or general reaction. As a result of this study the authors conclude:

(1) Virulent influenza bacilli, when injected into the nose and throat of healthy volunteers, may excite in them an acute respiratory disease, similar in many respects to influenza, but falling short of the typical clinical picture.

(2) In such cases influenza bacilli biologically identical with those inoculated, may be recovered from the discharges as long as symptoms persist and often for some time thereafter.

(3) Filtrates of *Bacillus influenzae* cultures, when similarly injected into two healthy volunteers, produced neither local nor constitutional reaction.

(4) The inoculation of healthy volunteers with virulent hemolytic streptococci may in some cases induce an acute follicular tonsillitis, with fever and leukocytosis. A virulent pneumococcus Type IV on the other hand, was injected into the nose and throat of two healthy volunteers with impunity.

M. M. BANOWITCH.

SIMON, S.: What Constitutes the Early Recognition of Tuberculosis. *American Review of Tuberculosis*, July, 1921, v, No. 5, p. 397.

Tuberculosis is a disease of repeated infections throughout an individual's life. Tubercle bacilli, once they gain entrance to the body,

reach the lymphatic system. Relatively few are arrested in intercalated nodes or collections of lymphoid cells. The larger number is borne along the venous system to the lungs where they are spread over the vast surface of pulmonary capillaries. Here too the smaller number may, as they leave the vessels to be again taken up by the pulmonary lymphatics, become arrested in collections of lymphoid cells or small lymph-nodes, but the larger proportion is borne with the lymph-stream to the tracheobronchial nodes, where they set up a definite lesion.

The only exception to the above is in the fulminant form of disease, and even here the same phenomenon may occur. Tuberculosis near enough to the surface of the chest to be clinically recognizable is always advanced disease. The cure of tuberculosis is the eradication of the tubercle bacillus.

Early pulmonary tuberculosis, clinically recognizable, always begins at the hilum as an extension from the tracheobronchial glands, is deep-seated, gives few signs in variable degree, consisting in impaired resonance, bronchial breath sounds and harsh whisper, between the second and fifth dorsal vertebrae in the interscapular space. Tracheobronchial lesion without extension into the lungs gives no physical signs. The arrest of extension of disease is appropriate treatment when the process is confined to the deep lung in the neighborhood of the hilum. When the process is on the surface all treatment is palliative. The furthest advanced tuberculosis need not be incompatible with life and even with a fair amount of work.

C. A. SCHMID.

CORPER, H. J., CO-MAN, P., GILMORE, W. M., AND BLACK, L. T.: **Hypertrophic Osteoarthropathy in Pulmonary Tuberculosis.** *American Review of Tuberculosis*, July, 1921, No. 5, p. 357.

In concluding an illustrated and a very well-written article, the authors summarize and conclude that hypertrophic osteoarthropathy is a common secondary pathological condition in consumptives, manifesting itself as a hypertrophy of the soft tissues and bony structures of the body, with certain sites for predilection. It is probable that thus far there are many sites in the body which have escaped attention.

The most common sites of the osseous manifestations of this as-

sociated pathological alteration in tuberculosis are the distal and proximal phalanges of the feet and hands, the long bones of the arms and legs and the bony processes of the oral cavity (jaws and hard palate). The most common sites of the soft tissue manifestations are the tips of the distal phalanges of the hands and feet and possibly to an extent, manifestations will be found in the nose and malar process.

The toe nails and finger nails are also a common site of the manifestation of hypertrophic osteoarthropathy, the expression of this condition of the nail being an increased convexity of the anterior posterior curve, "the hyperconvex nail", a lateral broadening, and increased ridging both lateral and transverse. Hyperconvex nails of the toes and fingers of consumptives occurred to the extent of about 75 or 95 per cent in the series studied, there being no difference in the incidence dependent upon the activity of the disease or the sex of the case.

Hypertrophy of the soft tissues of the hands or feet of consumptives has a higher incidence in the active (about 65 to 80 per cent) than it has been found to have in the inactive cases (about 45 per cent).

Bone changes of the hands and feet of consumptives are more common in the active (about 90 per cent in males) than in the inactive cases (about 55 per cent in males). The incidence of bone changes is less in females than in males. Hypertrophy in the bony processes of the jaws in consumptives was greater in the active (about 50 per cent) than in the inactive (about 20 per cent). A tumor-like hypertrophy of the hard palate was found in consumptives, apparently a manifestation of hypertrophic osteoarthropathy, which like the other manifestations of this condition had a greater incidence in the active cases (45 per cent in males) than in the inactive cases (about 25 per cent). No significant differences in the incidence of the manifestations of hypertrophic osteoarthropathy in cases of pulmonary tuberculosis were noted, whether the pulmonary condition had been of short (one year) or longer duration (over three years). A roentgenological study for bone changes in the absence of external findings is essential to the making of the diagnosis of hypertrophic osteoarthropathy. This was most definitely pointed out in the study made by Kessel.

C. A. SCHMID.

HAWES, J. B.: **Broncho-esophageal Fistula and Traction Diverticulum.** *The American Journal of the Medical Sciences*, June, 1921, clxi, No. 6, No. 591, p. 791.

A case of each disease is reported. The first was a man 37 years old who had been ill about 11 months with symptoms of lung abscess. He coughed up daily as much as 1 pint thick yellow sputum, occasionally blood-stained, without tubercle bacilli. Physical signs showed dulness, bronchial breathing, increased fremitus with crackling râles over the upper third of the right chest, with diminished breath sounds and bronchophony at right base. Two months later the abscess was drained and the first notice of fistula was that fluids which the patient drank came out through the drainage tube in the back. A bismuth roentgen ray showed clearly a sinus from the esophagus leading into the lungs. Both the wound and the fistula healed four months later.

The second case was that of a delicate woman of 42, who, although without previous history, was never well after influenza in January, 1916. She became weaker, lost weight, and had copious hemoptysis. X-ray showed extensive signs of tuberculosis, both active and chronic. Her doctor noted for years that certain foods, tablets and pills would be coughed up about two hours after they were swallowed. Another x-ray and fluoroscopic observation showed a diverticulum of the esophagus communicating with a bronchus.

A. T. MAYS.

BROWN, T. R.: **The Absence of Pancreatic Secretions in Sprue and the Employment of Pancreatic Extract in the Treatment of This Disease.** *The American Journal of the Medical Sciences*, April, 1921, clxi, No. 4, No. 589, p. 501.

Five cases are recorded in which symptoms were present for at least one year. The symptoms in each case were typical: gradual onset, sore mouth, diarrhea very marked in the morning, indigestion, increasing loss of weight, diminished appetite, abdominal discomfort, much gas, ballooning of the abdomen, and characteristic grey stools. Quantitative estimation of pancreatic ferments from studies of the stools and duodenal contents showed none present. The gastric con-

tents determinations showed subacidity in 2, achlorhydria in 2, and hyperacidity in 1. The last case showed no improvement in treatment; in the others the gastric juice returned to normal. Treatment included rest, fresh air, selected diet, and pancreatic extract. Buttermilk was given in the beginning, later eggs, zweiback, bread and milk, increasing to simple liquid and soft foods, fruit juices and purée of fruits. Hydrochloric acid was given the subacidity cases. Pancreatic extract or pancreatinin was given, 5 to 10 grains, with 20 to 40 grains of calcium carbonate or calcium lactate three times daily, 2 hours after meals. This must be administered constantly.

A. T. MAYS.

FREEDLANDER, S. O.: **Treatment of Tetanus.** *The American Journal of the Medical Sciences*, June, 1921, clxi, No. 6, No. 591, p. 819.

Four consecutive cases resulted in recovery by using 10,000 to 20,000 antitoxin units, several times daily, until all spasm has disappeared (1 to 2 weeks). Chlorotone was given by rectum, grains xx (1.3 grams), from 4 to 6 hours, until spasm was gone, and morphin was given hypodermically; large amounts of water and liquid nourishment are given every two hours. Experimental evidence shows that tetanus toxin is at least partly conducted by the perineural lymphatics. Theoretically the maintenance of a high concentration of antitoxin in the blood and lymph is indicated in tetanus treatment. Practically this may be accomplished by large frequent intravenous injections.

A. T. MAYS.

WEISS, E.: **Aneurysm of the Hepatic Artery; with Report of a Case.** *The American Journal of the Medical Sciences*, June, 1921, clxi, No. 6, No. 591, p. 859.

The patient was a white male aged 50. He had had paratyphoid fever eight years previously. Five years previously he had had severe epigastric pain lasting twenty-four hours not associated with vomiting or jaundice. He was always constipated. While standing talking he was suddenly seized with a burning pain at the um-

bilicus, which soon became intense over the entire abdomen; he perspired profusely. All signs pointed to the upper abdomen with tenderness in the gall-bladder region. The patient's condition improved and anesthesia was begun. He died after a few breaths. Autopsy showed an egg-shaped aneurysm measuring 2 cm. by 3 cm. at the division of the hepatic artery into its right and left terminal branches. The wall ruptured into the greater peritoneal cavity. This is the fifty-fifth case recorded.

A. T. MAYS.

JACKSON, C.: **The Symptomatology and Diagnosis of Foreign Bodies in the Air and Food Passages.** Based upon a Study of 789 Cases. *The American Journal of the Medical Sciences*, May, 1921, cxli, No. 5, No. 590, p. 625.

The Larynx.—Foreign bodies lodged in the larynx cause an initial laryngeal spasm, which is followed by more or less laryngeal wheezing, croupy cough and a variable degree of impairment of phonation. Pain may be present in the pharyngeal region, or referred to one or both ears. The signs are sudden in onset and should not be confounded with those of diphtheria. If this condition should simulate foreign body, there is a previous history of angioneurotic edema affecting other parts of the body. The presence of a thin, flat foreign body may be tolerated for a long time but with increasing dyspnea early removal is imperative.

The Trachea.—A foreign body is usually movable and felt by the patient if lodged in the trachea. The vibrations are palpated and auscultated. Cough is present, disappearing and recurring, and often causes vomiting. Phonation may be cut off suddenly by an expiratory blast. Dyspnea occurs, being caused by the swelling of the subglottic tissues and traumatism caused by the shifting body. An asthmatoïd wheeze is present and heard at the open mouth by the naked ear or bell of the stethoscope. It is lower pitched and louder than that of the foreign body in the bronchi. Pain is present and can be localized by the patient.

The Bronchi.—Laryngeal spasm is the initial symptom when the obstruction is in the bronchi caused by nut kernels, peas, beans, etc. A diffuse purulent laryngo-tracheo-bronchitis develops within twenty-

four hours in children under 2 years of age. Fever, toxemia, cyanosis, dyspnea and paroxysmal cough are present. The child is unable to cough up thick mucus and pus. Lung abscess forms rapidly. In older children the reaction is less severe. In the early stages an acute obstructive emphysema is present manifested by: (*a*) limited expansion; (*b*) muffled tympanitic percussion note; (*c*) markedly diminished or absent breath sounds on the obstructed side; and (*d*) many râles and harsh breathing on the free side. The X-ray shows: (*a*) greater transparency on the obstructed side; (*b*) displacement of the heart toward the free side; and (*c*) depression and limitation of the diaphragmatic movement on the obstructed side. Foreign bodies of long standing give periodic attacks of fever, chills, sweats, coughing, and expulsion of large amounts of purulent and foul material. The symptoms suggest tuberculosis. There is emaciation, clubbing of fingers and toes, night sweats, hemoptysis, and even gain in weight by outdoor regimen. Tubercle bacilli have never been found associated with foreign body in the bronchus in the bronchoscopic clinic. Cases recover quickly after the removal of the foreign body. The erroneous statement in all text-books, that all foreign body is followed by tuberculosis is an heirloom of the days before the discovery of the tubercle bacillus, hence pseudo-tuberculosis was confused with the true pulmonary tuberculosis. Pain may allow the patient to localize a foreign body accurately. Bodies of metallic or organic nature give their peculiar taste. A bronchial foreign body causes an offensive odor of the sputum, but absence of this should not exclude it. Sudden complete obstruction of one main bronchus does not cause noticeable dyspnea provided its fellow is functioning but if of long duration symptoms appear. The pleura is seldom involved. Physical signs show limited expansion on the affected side, impaired percussion, diminished transmission or absence of breath sounds distal to the foreign body. If the asthmatoïd wheeze is present it aids diagnosis but if absent it does not exclude foreign body. X-ray is imperative; it should be made by an experienced roentgenologist. Symptoms of pulmonary abscess or other lung disease, even cough following within a few weeks of tooth extraction, call for the exclusion of foreign body in the lung.

The Esophagus.—Foreign body in the esophagus has no definite diagnostic symptoms. Dysphagia is the most common complaint. Pain is present if a sharp body has penetrated. Subjective sensa-

tion is usually present. All of these symptoms may exist, often in an intense degree, from previous violent attempts at removal. Fluoroscopic study of swallowing with barium mixture or a capsule containing barium will give the location of a foreign body which may not be radiopaque. Antero-posterior and lateral roentgenograms are important.

The Stomach.—When the foreign body is in the stomach no symptoms of foreign body are apt to be present. The chief means of diagnosis are x-ray and fluoroscopy.

A. T. MAYS.

MACNEAL, W. J.: **Pellagra.** *The American Journal of the Medical Sciences*, April, 1921, clxi, No. 4, No. 589, p. 469.

Pellagra, a specific disease of man, is characterized by digestive and nervous manifestations, and a symmetrical erythema, involving especially the dorsal surfaces of the hands. According to the author the causative factors are a living organism, and reduction of resistance of the individual caused by malnutrition, disease, age, alcoholism, etc. The specific organism resides in the gastro-intestinal tract. The disease is most prevalent in certain parts of Turkey, Egypt, Roumania, Austrian Tyrol, Northern Italy, West Indies, Yucatan, and the southern parts of the United States. An occasional outbreak has been observed in institutions for the insane in the northern part of the United States. In Spartanburg County, South Carolina, owing to the segregation of the negroes, the incidence rate was one-third that of the whites. Having a lower racial resistance to pellagra, the death rate among the negroes was three and a half times greater than among the whites. Most cases occurred in white women and children, older white men, and negro women. It is rare under one year of age, fairly prevalent under ten years, less at puberty, increasing in women between sixteen and forty-five, and infrequent in men until after thirty-two.

The prodromal period is slow in onset, accompanied by the usual symptoms of lassitude, anorexia, increasing prostration, loss of weight, gastro-intestinal disturbances, etc. These increase for several months, until suddenly, over night, a diffuse red macular eruption, quickly coalescing, appears on the back of the hands and fingers,

extending on to the wrists and forearm. Swelling appears above the hyperemic area. The small flat areas become more prominent while the furrows between these areas become deeper. The erythema becomes confluent in a few hours and slowly extends with sharply demarcated margins. The skin is very sensitive even to air; it burns and itches. Desquamation begins in a few days; in two weeks a horny layer of skin obscures the underlying erythema, which persists for several months. Pigmentation follows. Restitution begins at the older parts of the lesion first. There may be new outbreaks of erythema. Less important is the reddening of the mouth and pharynx, burning sensations and general inflammatory symptoms of the gastro-intestinal tract. The nervous manifestations are of two types: (1) the so-called pellagrous insanity; (2) a peripheral neuritis. The first type is noted in 40 per cent between the ages of forty and sixty, and most often in females. Children are exempt. Ninety-five per cent of these cases belong to the neurasthenic type. The second type manifests itself mainly as a paresis or paralysis of the lower extremity muscles, resembling an alcoholic neuritis. This occurs in children as well as in adults. There is no temperature in pellagra and the pulse rate is higher than normal. Blood-pressure is low. The majority improve in the winter time. Recurrence of the attack may occur every year, and it is wise to speak of the disease as arrested or quiescent. As a rule the recurrence appears two weeks earlier in the year than the previous attack. It is milder and the death rate correspondingly lower. Pregnant women are less frequently attacked and always run a mild course. All experimental inoculations have failed to produce pellagra.

A. T. MAYS.

MOZINGO, A. E.: **The Surgical Treatment of Empyema by a Closed Method.** *The American Journal of the Medical Sciences*, May, 1921, clxi, No. 5, No. 590, p. 676.

Early operation by the closed treatment method can be performed regardless of the stage of pneumonia or serious condition of the patient, without the least shock or collapse of the lung. It provides complete evacuation of the empyema cavity. It relieves cardiac and respiratory embarrassment and prevents absorption of toxins and the

usual resultant complications. It lessens pleural thickening, and prevents the lung from becoming fixed. There is less pain and discomfort to the patient: it requires less time and labor, and fewer dressings. The dressings are smaller and cleaner. There is less recurrence and less likely to be need of secondary operation. It gives a constant negative pressure, allowing maximum expansion of the lung. The scar is small and there is no deformity. It can be done at home or in the country. The mortality is lower. It can effect cure in acute bilateral empyema, both sides being operated upon at the same time without acute bilateral pneumonia being present, which treatment is impossible by the open method. Preliminary sterilization of the empyemic cavity is first done with Dakin's solution. Liqueur formaldehyd in glycerin, 2 per cent solution, is next used. Smears and cultures show a rapid diminution of bacteria in a few days. Bronchial fistulae are more common than is generally suspected. With this complication salt solution is used in amounts as large as possible without causing the patient to cough. Cases becoming chronic following open operation can be generally cured by this method in a short time.

A. T. MAYS.

RAVDIN, R. S., AND GLENN, E.: **The Transfusion of Blood, with Report of 186 Transfusions.** *The American Journal of the Medical Sciences*, May, 1921, clxi, No. 5, No. 590, p. 705.

With the element of risk practically eliminated, blood transfusion has become one of the most effective procedures in modern therapeutics. Transfusion is a specific in acute hemorrhage, where the limit of bleeding has not been reached, in melena, and in the hemorrhage of hemophilia. The average amount of blood used is from 750 to 1000 c. c. at intervals. It is of definite value in primary pernicious anemia in hastening and prolonging remissions. It is indicated in cases of severe secondary anemia. After transfusions operations on debilitated or anemic individuals may often be safely undertaken that otherwise would involve risk. Transfusions are more efficacious in cases of shock associated with hemorrhage. No value of transfusion in cases of acute infections has been proved, but it has been in chronic infections. It is of unproved value in acute

leukemia. In aplastic anemia it is, at the most, a temporizing procedure. The difference, as far as reactions are concerned, between the citrate method and the Kingston-Brown method, the authors have found to be practically nil and the simplicity of the former warrants its preference.

A. T. MAYS.

KAY, W. E., AND BROCK, S.: **The White Adrenal Line (Sergent); Its Clinical Significance.** *The American Journal of the Medical Sciences*, April, 1921, clxi, No. 4, No. 589, p. 555.

Two hundred and fifty-five cases were studied. A variety of types of diseases were used such as anemias, cardiovascular patients, neurological, tuberculosis, hypertension, endocrine, infections, and normal patients. The authors conclude that the so-called white adrenalin line of Sergent is a local vasomotor reflex resident in the skin, bearing no direct relationship to adrenal gland activity. The reasons are: (a) its independence of blood-pressure, acute fatigue and other signs of hypoadrenia; (b) its frequent occurrence in normals and in a variety of diseases unassociated with hypoadrenia; (c) its reappearance in the face of persistent general manifestations of adrenalin subcutaneously administered; (d) its peculiar association with scarlet fever. The state of the vasomotor system which allows of its best exhibition is found in young adults of either sex, and especially in the exanthem of scarlet fever. On the basis of the above series it may be stated that this line has not the clinical significance attributed to it, and further investigation is necessary to establish the exact physiologic mechanism of this remarkable vasomotor phenomenon.

A. T. MAYS.

KEYES, E. L., JR.: **Problems Concerning Urinary Calculi.** *The American Journal of the Medical Sciences*, March, 1921, clxi, No. 3, No. 588, p. 334.

Most primary stones contain both urates and oxalates with a predominance of urates in bladder-stones, and oxalates in renal and

ureteral stones. Radiographic failure to show ureteral stones is due to their small size, and successful pictures of bladder-stones are due to the presence of phosphates. Bladder-stones are disproportionately frequent in childhood. Many urate stones retained in the bladder have no antecedent history of renal colic. A stone may be retained in four ways; namely, (1) adherence at the point of formation; (2) irregular shape; (3) lodgment in the pelvis of the kidney or bladder; and (4) stricture. A primary stone is never retained in the bladder of a woman, and very seldom in her urethra. In the author's series renal colic occurred only in one case in 10 before the age of 20, yet one half had begun before the age of 35; the peak is between the ages of 26 and 40; after 50 it occurs seldom. It occurred 90 times on the left side, 88 on the right. Recto-abdominal manipulation may aid a stone along if it is at the lower end of the ureter. If the stone is within several centimeters of the bladder orifice, its expulsion is expedited by excising the urethral orifice with the cystoscopic scissors or forceps. Urethral catheters sometimes dislodge stones. The author has waited from 9 to 26 months for stones to pass without gravely impairing renal function but this is not a good guide to follow. Rounded stones composed largely of urates and phosphates produce mild colic and can be waited for. Bilateral stones occurred in 49 patients in 187.

FROTHINGHAM, C.: **Influenza.** *The American Journal of the Medical Sciences*, April, 1921, clxi, No. 4, No. 589, p. 528.

In an exhaustive review of the literature the author finds many positive and negative reports on the isolation of a specific bacillus as the etiological factor. The mode of transmission is not definite but the majority believe it is by means of respiratory droplets containing the virus which contaminates the air, utensils, clothing, food, etc. The period of incubation was found to be from one to two days. The symptoms were sudden onset, severe prostration in a few hours followed by generalized muscular pains, headache, chills, nausea, and bowel disturbances. Coryza and cough appeared in one or two days, with a dry tickling sore throat and hoarseness. Nose-bleed and premature menstruation were quite common. Reddened pharynx and conjunctivæ with beginning cyanosis appeared early. An erythe-

matous rash and petechial hemorrhages occurred in some instances. Meningeal irritation was frequently met. Fever was present. The spleen was occasionally palpable. A review of laboratory tests tell only of a leukopenia, an elevation of blood urea, and a slight degree of acidosis. The course of the disease was only a few days, in uncomplicated cases. A second elevation of temperature was due to either an invasion of some complicating organism or an extension of the existing process. Clinical signs similar to lobar pneumonia signs were due to confluent bronchopneumonic patches, and these areas changed not only from day to day but often from hour to hour. If pneumonia developed the termination usually came in three days or the patients continued to drag along some time before death by suffocation caused by mechanical obstruction in the bronchi. Uncomplicated cases recovered by crisis and the leukocyte count returned to normal. The complications were: bronchopneumonia, the most frequent; empyema of the sinuses; middle ear and mastoid conditions; simple serous or seropurulent pleural effusions and empyema; osteomyelitis; endocarditis; pericarditis; peritonitis; jaundice; tachycardia; thyroiditis; orchitis; cerebral thrombosis; neuritis; and subcutaneous abscesses. The prognosis was good in uncomplicated cases. About 20 per cent developed pneumonia and of these 30 per cent died, making a total mortality of 6 per cent for the disease. In pregnant women the mortality was much higher. Treatment is rest in bed early in the course, mouth wash and spray, forced fluids, quinin, and supportive treatment. If pneumonia developed, digitalis and venesection were resorted to. In Type I infection, Type I pneumococcus serum is indicated. A serum collected from several patients who have recovered has been used with great benefit. Horse serum and glucose intravenously, given repeatedly, have been beneficial.

A. T. Mays.

BARACH, J.: **Nocturnal Polyuria.** *The American Journal of the Medical Sciences*, April, 1921, clxi, No. 4, No. 589, p. 551.

Nocturnal polyuria occurs in subacute and chronic nephritis. It occurs when the blood-pressure is normal but is more marked in hypertension. The quantitative analyses show a complete reversal

from the normal in the amount of work accomplished by the kidneys during the day and night periods. Observations upon patients having nocturnal polyuria show that it is not the result of heavy evening meals, physical exertion, arterial hypertension, or the horizontal posture. The most probable cause seems to be found in the physiologic adjustments in circulation incidental to sleep. The facts gathered suggest that nocturnal polyuria is primarily a manifestation of increased elimination of water because of a more favorable state of the renal circulation and that the increased elimination of salts is coincidental rather than causative.

A. T. MAYS.

ELLIS, M. M.: **Pulse-rate and Blood-pressure Responses of Men to Postural Changes.** *The American Journal of the Medical Sciences*, April, 1921, clxi, No. 4, No. 589, p. 568.

Elevating the head causes accelerated pulse-rate, fall of systolic pressure, and rise in diastolic pressure. Lowering the head causes a fall in pulse-rate, rise in systolic, and fall in diastolic pressure. The head-down tilt caused a fall in rate, fall in systolic pressure and rise in diastolic pressure. Tilts from reclining to head down 45 degrees and return gave the least constant responses of all the tilts used. Tilts from reclining to head up 45 degrees produced almost the same degree of responses as the tilt from reclining to standing.

A. T. MAYS.

LAMSON, P. D., AND ROCA, J.: **The Liver as a Blood Concentrating Organ.** *Journal of Pharmacology and Experimental Therapeutics*, July, 1921, xvii, No. 6, p. 481.

The disappearance of intravenously injected isotonic salt solution from the blood is due in large part to the action of the liver. The rate of disappearance is decreased four times or more by the removal of the liver. The addition of epinephrin to the injected fluid greatly increases its rate of disappearance in the normal animal, but has no effect in an animal whose liver has been removed from the circulation.

The liver occupies a unique position in the circulation on account of being the only organ in the body having a constrictor mechanism on the venous side of its capillaries. This powerful constrictor mechanism in the hepatic veins of certain species of animals as the dog, is acted upon by epinephrin and is under nervous control. Obstruction to the hepatic blood flow by constriction of the hepatic veins causes an increased filtration pressure throughout the enormous area of liver capillaries, the filtration of the fluid into the liver lymphatics, a concentration of the blood and an increase in the number of red cells per unit volume of blood. After a considerable latent period this fluid is returned to the blood stream by way of the thoracic duct.*

The theory that any increase in arterial pressure will cause a general filtration of fluid into the tissues is incorrect. The addition of epinephrin to intravenous salt solution for the purpose of raising the blood-pressure should be discouraged as it accelerates fluid loss.

The acute polycythemia found in emotional disturbances, asphyxia, exercise and after the injection of certain drugs can all be explained by this mechanism, but as yet it is not proven that they do occur in this manner only. Fluid may be lost from the body by any of the channels of excretion. It may leave the blood stream by diffusion in certain pathological conditions but this mechanism in the liver is the only known mechanical device by which fluid may be removed from the circulation by filtration and yet not be lost from the body.

C. A. SCHMID.

HAMILL, R. C.: **Coccygodynia.** *The Medical Clinics of North America*, July, 1921, v, No. 1, p. 37.

The author relates the history of a young unmarried woman of 28 who, from the age of 15, had suffered from coccygodynia. The first attack developed two or three weeks after a fall by which she was badly frightened rather than severely injured. The pain as described by the patient was cramp-like in character, disabling, and would bring on a feeling of panic. It was brought on, she thought, by hard feces in the rectum, gas, and by any strong emotion. Its duration varied from a minute to several hours. Various kinds of previous treatment, including removal of the coccyx, had given no relief, and the patient was despondent to the point of ideas of suicide.

In carefully examining the details of the patient's history and description of the painful attacks, the fall at the age of 15 appeared to have caused more of a psychic than a physical trauma. The causative factors which might excite an attack were those of an emotional character rather than physical causes. These emotional causes were of a nature which frequently suggested the possibility of sexual excitement. This with the description of the cramp-like pain and the resulting panicky feeling led Hamill to believe that the so-called coccygodynia was really a sort of vaginismus, which in turn is closely related to the muscular condition of erection and orgasm. He believes it to be increased by contractions of muscles inserted into the central fibrous point of the perineum. Referring to the definition of coccygodynia as given by Oppenheim in which it is stated that a local inflammatory process "can usually be distinguished from neuralgia by careful bimanual examination", Hamill states that this procedure might alone cause pain which was due more to the mental attitude than to any local inflammatory condition.

A careful explanation of the condition to the patient and the ability to obtain her cooperation in realizing the true nature of the affection resulted in a marked improvement not alone of the coccygodynia but of the emotional attitude.

H. WOLFER.

STIMSON, P. M.: **Syphilis of the Trachea and Bronchi: A Resume of the Diagnostic Features with Three Case Reports.** *The American Journal of the Medical Sciences*, May, 1921, clxi, No. 5, No. 590, p. 740.

The characteristic changes are those of tracheal or bronchial obstruction, causing a peculiar type of dyspnea with labored prolonged inspiration and shorter easier expiration; paroxysms of excessive dyspnea, sufficient to cause syncope or even death; cough which is usually hard, brassy and paroxysmal, although quite variable in character; stridulous sounds, particularly during inspiration; frequently an inspiratory sinking-in of the tissues of the root of the neck, epigastrium, and lower intercostal spaces; other features are present such as more or less profuse sputum, a limitation in the mobility of the larynx.

A. T. MAYS.

PEMBERTON, R.: **The Use of Diet in the Treatment of Chronic Arthritis.** *The American Journal of the Medical Sciences*, April, 1921, clxi, No. 4, No. 589, p. 517.

The writer has had excellent results by reducing the metabolic load. The accustomed number of calories of the patients' food intake is first determined, including fat, protein, and carbohydrate, the last being the chief offender because of its quick combustion and the large rôle it plays in average dietaries. Approximately about 30 calories per kilogram of body weight are allowed when at rest. Caution is urged against depletion. Following a sharply reduced diet there may be a rapid loss of weight and metabolism is hastened by hydrotherapy, arsenic, or potassium iodid. When convalescence is thoroughly established an increased caloric intake is often possible, sometimes to such a degree that the patient resumes his previous activities with added efficiency.

A. T. MAYS.

TSURUMI, M., AND ISONO, S.: **The Initial Exanthem of Smallpox.** *The Journal of Infectious Diseases*, August, 1921, xxix, No. 2, p. 109.

Prior to the peculiar eruption of smallpox is the so-called initial exanthem closely resembling the eruptions of scarlet fever and measles, and it is significant in the diagnosis of smallpox especially in the so-called variola sine exanthemate. Of 103 smallpox patients observed, 39 had this initial exanthem. It may be classified into three groups, the hemorrhagic, the scarlet-fever-like, and the measles-like. The eruption appeared on the outer side of the upper arm in all the cases in this series, but it is also found in Simon's thigh triangle, the abdomen, chest, back, and lower extremities. There is no direct relation between the initial exanthem and the pock marks. In the vaccinated the eruption is most marked about the place of vaccination but if ten years have elapsed since the last vaccination, no such tendency is apparent. An initial exanthem does not necessarily guarantee a light attack, especially in case the exanthem is hemorrhagic in character.

M. M. BANOWITCH.

MINNIG, A.: **Vaccines in the Treatment of Tuberculosis.** *American Review of Tuberculosis*, July, 1921, v, No. 5, p. 421.

Autogenous vaccines are indicated in a certain proportion of cases of pulmonary tuberculosis. In a series of 63 cases, 32, or 52 per cent, improved, and 15 of these were Stage III cases.

More than one organism to a vaccine is contraindicated in most cases. Stock vaccines are useless. The organism which gave the best results in the above series of cases was *Streptococcus hemolyticus*.

Vaccines are contraindicated when there is present some evident focus of infection outside of the lung. Here the course indicated is to remove the other focus and after a month or two start vaccine therapy. The vaccine treatment is not suitable when there is a coëxisting acute infection, an acute exacerbation of tuberculosis or persistently high temperature.

C. A. SCHMID.

HAMBURGER, W. W.: **The Administration of Digitalis in the Presence of Certain Acute Infections.** *The Medical Clinics of North America*, July, 1921, v, 101.

The histories of three cases are given each accompanied with electro-cardiographic tracings by which Hamburger illustrates the frequency with which the toxins of certain infections, such as diphtheria, influenza, and those caused by the streptococcus, produce partial or complete heart-block. Other agents which may cause this condition either experimentally or clinically are asphyxia, adrenalin, strophanthin, aconitin, physostigmin, nicotin, glyoxilic acid, morphin and potassium salts. Hamburger and Cockayne had previously noted the involvement of the conduction pathways following influenza and McCulloch had recently reported 19 cases of a group of 80 having diphtheria, a number of which showed partial or complete auriculo-ventricular dissociation. In cases of diphtheria he believed digitalis to be contraindicated due to the summation of the action of the digitalis and the toxin in producing changes in the conductive system.

Hamburger believes digitalis should be given in the severe cases of pneumonia particularly in the aged, in the presence of auricular fibrillation or when definite evidence of heart failure appears. In

the ordinary case of pneumonia large doses should not be given as a routine measure, and should signs of weakening cardiac function appear the heart can be quickly digitalized by the use of large amounts of the drug. In conclusion he states "in the treatment of atypical broncho- and lobar pneumonia, influenza, streptococcus and other mixed streptococcus infections, endemic, epidemic, or pandemic respiratory infections, digitalis and related digitalis bodies are probably contraindicated, or, if used at all, should be given in small doses and only in case of actually threatened or present heart failure, the possibility of heart-block being constantly borne in mind, during its administration. If block occurs, atropin should be given at once in moderate amounts, and repeated as necessary. If digitalis must be used, it probably never should be administered in the massive doses of Eggleston, as most certainly with such large amounts cardiac damage from digitalis summation can be predicted."

H. WOLFER.

PAGNIEZ: **Some Treatments for Migraine** (De Quelques traitements de ka migraine). *Presse medical*, January 15, 1921, xxix, 45.

Bouche and Hustin treat the migraine patient by a series of injections of croctalin or horse serum. The croctalin provokes a local reaction at first which is reproduced by successive injections. The first injection sensitizes the patient who reacts more or less violently to later injections, in fact, sometimes very violently. However as one injects only minimum doses (1 c. c.) of horse serum, 1 to 2 mg. (.0154 to .0308 grain) of croctalin, the reaction always remains local and is interpreted by a patch of erythema more or less extensive, more or less angry. Under the influence of these injections, the disposition to migraine is modified and little by little disappears. Two cases of woman patients are reported.

Another method of treatment consists of having the migraine patient ingest, not at the moment of seizure but at some other time, a small quantity of peptone about an hour before each meal. In this way it is hoped to counteract the injurious action of certain albuminoid nourishments, by virtue of an antianaphylactic mechanism, analogous to that which has previously been set to work against certain urticarias of alimentary origin. This treatment has been applied to numerous cases of migraine with variable results.

LEVINE, S. A., AND LADD, W. S.: Pernicious Anemia. A Clinical Study of One Hundred and Fifty Consecutive Cases with Special Reference to Gastric Anacidity. *Bulletin Johns Hopkins Hospital*, August, 1921, No. 366, p. 254.

The authors find that the absence of free HCl is practically constant in cases of pernicious anemia (99 per cent of the cases). It is often present years before the blood shows any of the typical changes, and possibly always antedates them. They believe it is of considerable importance in diagnosis. There seemed to be a distinct familial factor in the disease and the incidence in English speaking people and Scandinavians was greater than in immigrants from Russia, Italy and Eastern Europe. Syphilis played no significant rôle in the series. Eosinophilia of a marked degree was a frequent finding. The proportion of males to females was 2 to 3. The average age of both sexes was about 51 years.

D. LAYTON.

GIVEN, H. C.: Some Deductions from the Statistics on the Prevention of Pulmonary Tuberculosis. *British Medical Journal*, February 12, 1921, No. 3137, p. 225.

The decline in mortality from pulmonary tuberculosis dates from 1838, and had continued to 1913.

COMPARISON IN DEATHS PER MILLION LIVING.

		1861-1870	1871-1880	1881-1890	1891-1900	1900-1910
ZYMOTICS	- - - -	2.061	1.633	1.367	1.219	.909
PULMONARY TUBERCULOSIS	- -	2.590	2.231	1.810	1.418	1.143

Pneumonia shows a decline of 14 per cent, phthisis of 11.6 per cent, bronchitis of 10.68 per cent, zymotics 21 per cent. Bronchitis in England has a higher death-rate than pulmonary tuberculosis. Respiratory diseases account for over 19 per cent of all deaths in the first year; over 29 per cent in the 1-5 year group; 11 per cent in the 5-15; and 7 per cent of all deaths in the 15-25 age period. Pulmonary tuberculosis starts with 2.29 per cent in the 1-5 age period; 10.43 per cent is reached at the age of 15 to 25.

EARLE, H. G., AND GOODALL: **Basal Metabolism and Its Clinical Significance.** *Lancet*, April 23, 1921, xvii, 853.

The patient is admitted overnight, or if this is not possible, is rested for one hour after arrival, in the morning before the observation is made. No food is permitted after the previous evening—in other words the observation is made after a twelve-hours' fast. The patient is gradually introduced to the test and its nature and purpose explained. The mouth-piece is first introduced, then the nose-clip, then both are used; in each case free breathing is permitted from the room atmosphere. Next the patient is connected with the apparatus, the valve being turned so that the ordinary atmosphere is still breathed. The fat is set going and the patient's eyes being closed the valve is now turned on so as to connect with the spirometer and the excursions of the bell noted. As soon as regular breathing is established a reading is taken at the end of expiration and the ten-minute period started by means of a stop watch. At the end of the period a similar reading is taken and the exact duration of the test noted; the valve is then turned back and the patient disconnected. In some cases it may be better to take two five minute tests (*e. g.*, with excitable patient) but in any case the readings taken can be checked and amplified by analysis of the record. Benedict apparatus was used.

JONES, H. P.: **A Demonstration of the Technic Followed in the Determination of the Basal Metabolism Rate—Indirect Method Using the Benedict Portable Uni'.** *New Orleans Medical and Surgical Journal*, January 1921, lxxiii, 262-271.

The author has used the apparatus designed by Prof. Francis T. Benedict. The minimum heat production of an animal, twelve to eighteen hours after the ingestion of food and with the animal at complete rest is what is known as the basal metabolic rate. The patient must have taken no food for at least twelve to eighteen hours, as the energy required by digestion is enough to upset the value of the observation; for that reason it is usually more convenient to have the patient report to the clinic in the morning. The least muscular activity on the part of the subject causes an error in the reading of the rate, so delicate and accurate are these determinations. Should

this happen, note should be made of it and the work repeated if the effect of these movements cannot be evaluated. It is the author's custom to have subjects loosen articles of clothing and to rest on the table or couch, upon which they will be during the observation for at least thirty minutes before the test begins. It makes very little difference whether they are semireclining or lying flat, so long as they are at rest and comfortable. Any elevation of the body temperature above 90° F. (32.22° C.) so disturbs the rate that the determination is questionable. No way of discounting abnormal temperature has been devised. The character of the respiration should be normal and the patient should be at mental as well as physical rest. Records should be kept accurately and at the moment; checks should be made by duplication of tests. The Benedict apparatus is a closed circuit device into which the patient breathes back and forth; this may be accomplished by use of a tissue mask, a mouth-piece and nose-clip or in various ways as the determination is one of oxygen consumed. It has been found not necessary in general clinical practice to determine the urea, nitrogen or the CO_2 output or respiratory quotient. Any leakage is charged up to the patient, and as the apparatus is filled with pure oxygen the slightest loss is correspondingly magnified as the machine must be tested for leaks. The connection having been made the motor driving the force fan is started, and the three-way valve having been closed, the oxygen is driven from the gasometer bell which rises and falls with each respiratory movement through a jar of soda-lime which absorbs the CO_2 . From the soda-lime jar it goes to the mouth piece, and then back to the bell under a pressure equal to about three-fourth inch of water. As air is inspired the bell goes down; as it is expired the bell goes up and as the end of expiration is more regularly recorded, all observations begin and end at the end of respiration. The gasometer is calibrated in centimeters. The number of cubic centimeters in the bell subtracted from the number recorded in the bell at the beginning gives the amount of oxygen consumed. In this apparatus it is necessary to make only the corrections for temperature and barometric pressure. For a respiratory quotient of .84, the calorific value of 1 liter of oxygen is 4.85, using the value of the non-protein respiratory quotient. Therefore, the number of calories produced per hour will be the number of liters of oxygen consumed per minute times 60×4.85 . This divided by the number of square meters of skin surface gives the number

of calories produced per hour per square meter of skin surface or the basal metabolism. This compared with the normal for sex and age gives the basal metabolism rate. The heat production or metabolic rate, is concomitant with work accomplished; it is an indication of the rate of oxidation and cannot be estimated by taking the temperature of the subject.

FARLEY, D. L.: **Impetigo Contagiosa.** *Archives of Dermatology and Syphilology*, 1921, iii, 753.

It is to be seen from the extensive literature referred to here that investigators of impetigo have gone no farther than to conclude that a streptococcus was the organism most frequently and consistently isolated from cases of impetigo. The author found that with proper precautions and under proper conditions streptococci may be obtained from nearly all cases of impetigo. If the full complement of streptococci is to be obtained on culture it is necessary to take the material from an early and uncrusted lesion. If this is not possible, it should be taken from the deep, redder parts from which all crusts have been removed. Four different strains of streptococci are concerned. Associated organisms such as staphylococci, pseudodiphtheria bacilli, etc., are either extraneous or secondary invaders. It cannot be predicted from the aspect of the clinical lesion (bullous, crusted or ecchymatous) what strain of streptococcus will be found on culture.

MARTINEZ, F. F.: **Abdominal Arteriosclerosis and the Obliteration of the Mesenteric Arteries** (La Arteriosclerosis Abdominal y la obliteración de las arterias mesenterica). *Revista espanola Medico y Cirurgia*, February, 1921, iv, 69.

A sailor, 30 years old, was seized with violent pain about the umbilicus. Pain was abated with morphin and pantopon; vomiting was severe. There was meteorism, and general peritoneal symptoms. Rectal exploration showed only slight tenderness of Douglas pouch. No albuminuria. Temperature 37.5° C. (99.6° F.), pulse 120, soft thread-like. The bloody vomiting became less frequent and intestinal stasis seemed complete. At this stage the author made the diagnosis of subacute peritonitis from gastric per-

foration. After the vomiting had at first become less, bloody serous diarrhea set in. The man used tobacco and alcohol freely. Adrenalin injections were made. The patient suffered from severe shock, and died half an hour later.

Autopsy showed the stomach intact. No perigastritis, etc., no ulceration, no perforation. In the floor of the abdomen slight serous blood-tinged effusion; most of the intestines were normal. In the middle of the intestinal mass there was one loop, which was more voluminous than the rest; it was hardened and superficially gangrenous. The mesentery around this loop was hardened. The veins seemed normal, the arteries were rigid and heavy, and at various points seemed entirely obliterated and partially enlarged.

Abdominal arteriosclerosis and obliteration of the mesenteric arteries have been mentioned by various clinicians. These cases of arteriosclerosis of the coverings of the intestines have been studied very little; the abdominal aortitis has been studied a little oftener. The etiology of abdominal arteriosclerosis is the same as that of generalized arteriosclerosis. Teissier says that with the great affinity of these viscera for venereal diseases, arteriosclerosis is explainable. The chronic intestinal inflammations are also responsible, enteritis, typhoid, also alcoholism in which alcohol is absorbed into these parts. The obliteration of the mesenteric vessels may be due to thrombosis from endarteritis obliterans, or emboli of aortitis cronica or a valvular lesion. The reasons for mesenterial arteriosclerosis are practically the same as those for obliteration of the mesenterical vessels. Abdominal aortitis or atheroma is not infrequently found at autopsy, without having caused any sign. The main characteristic is the sudden pain with gastro-intestinal symptoms. Usually there is a slight degree of paresis associated with it, in the lower extremities. Embolism of the abdominal aorta is very rare. The intestinal arteriosclerotic syndrome at the very first examination is very indistinct.

The condition, according to Larat and Cleret was found 45 times in the periumbilical region, 10 times in the right hypochondrium, 10 times in the left hypochondrium, once in the fossa iliaca sinistra, 6 times in the right iliac fossa, once in the vesical region, six times in the inferior part of the abdomen, 13 times there was generalized pain in the entire body, once localized pain in a hernia. Radiology has shown them as aneurysms. General arteriosclerotic symptoms must

be looked for. In differential diagnosis tabic crises must be considered, also abdominal neuroses, enterocolitis, enteritis mucomembranosa, oxaluria, pulmonary colic, celiac neuralgia, hepatic colics, ulcer or cancer of the stomach. Prognosis of abdominal arteriosclerosis is not good, and treatment of little value. Para Zesas gives a mortality of 95 per cent; Para Gallavardi of 100 per cent. Sclerotic diet should be tried, so may iodine, theobromine, valerian, salicyl, and antisyphilitics. Morphine may be used for the attack; paraffin into the intestinal space; nitrate of sodium. The diseased section of the intestine can be removed.

CHEINISSE: **Ethylhydrocuprien in Ophthalmology.** *Presse medical*, 1921, xxix, 66.

Ethylhydrocuprein is a derivative of quinine obtained by Morgenroth and Halberstadter. They described, in a communication read before the Berlin Society of Medicine, March 20, 1912, the remarkable sterilizing effects that the chlorhydrate of ethylhydrocuprein is able to exert on the experimental pneumococcus infection. By repeated injections it is possible to ensure the survival of mice, which have received a fatal dose of pneumococci into the peritoneal cavity. But when efforts have been made to take advantage of this discovery, an impediment has become apparent. Ethylhydrocuprein, administered internally, provokes amblyopia. At first it was thought to have only a transitory effect, but later permanent lesions of the optic nerve were discovered. Local applications of this medicament, however, have found a wide use in ophthalmology. Clinical experience has shown this drug to be efficacious not only against conjunctivitis and pneumococcal ulcerations of the cornea, but also against ocular manifestations of other origin. Mlle. E. Puscarin (*C. R. de la Soc. de Biol. Seance*, du 16 Mai, 1914, p. 831) reported a case of gonococcal conjunctivitis, cured on the fourth day. Cases of several days' standing yielded in at most fifteen days. In ciliary blepharitis, with redness of the palpebral edge and adherent crusts, one may often obtain, by means of instillations of a 1 per cent aqueous solution of ethylhydrocuprein, a complete cure in the space of a week, even in cases which have been rebellious with every other means of treatment. Ethylhydrocuprein is naturally indicated in pneumococcal

conjunctivitis. The light forms yield rapidly to instillations of a 1 per cent solution of ethylhydrocuprein, repeated every two hours. The purulent forms are influenced not so rapidly. In springtime conjunctivitis, characterized by an intense photophobia, with itching, the use of ethylhydrocuprein is superior to any other medicament, chlorhydrate of adrenalin included. Good results have been obtained in granular conjunctivitis. The conjunctival injection diminishes considerably in 24 hours, the ulcers tend to cicatrize and at the end of ten days, many of the patients were able to return to their occupations. Acute and chronic dacryocystites are often much aided by this drug. In the treatment of corneal ulcerations of serious forms with beginning of hypopyon, intense infection of the iris and severe bulbar congestion, instillations of a 1 per cent solution of ethylhydrocuprein repeated every two hours lead, in a space of twenty-four hours to a diminution of the infiltration and, at the end of three days, the morbid symptoms generally disappear and the ulcer begins to cicatrize. The same method of treatment is valuable in cases of corneal infection, following cataract extraction as well as in phlyctenular disease. On the other hand, the drug seems to give no improvement in interstitial keratitis of syphilitic or tuberculous origin. Atropin, cocain, boric acid or argyrol may be associated with ethylhydrocuprein without diminishing the latter's effectiveness. It is well to know that instillations of the drug sometimes produce rather violent local reactions, which are evidenced by considerable edema of the conjunctivæ and of the eyelids. One case is reported by W. C. Finnoff (*J. A. M. A.*, Oct. 2, 1920, p. 931) in which a particular sensitiveness to quinin led to an intense swelling of the eyelids, with exacerbation of the pain, slight ringing in the ears, and urticaria, localized on the lower eyelids, on the face and on the back of the hands.

LANE, SIR W. A.: **Colectomy.** *Lancet*, January 29, 1921, p. 207.

In a certain small proportion of colectomies that escape from observation for a considerable time, symptoms of obstruction or a recurrence of the disease may occasionally occur. The author refers to conditions such as exophthalmic goiter, rheumatoid arthritis, eptileptiform tic, Still's disease, Raynaud's disease, and some others

in which, after an apparently magical cure, a relapse may take place months or years after. The complications liable to affect the operation disadvantageously are obstruction from inflammatory adhesions and obstruction from excessive elongation of the pelvic colon. The latter is avoidable by evacuating the residual colon three times a day. An accidental rotation of the end of the ileum on its axis may occur, and result in a twist and in a partial obstruction of the ileum. If there is any surface of the surrounding abdominal wall which has been deprived of the normal smooth peritoneal lining in inactive bowel it is very likely to form adhesions to it and sooner or later obstructions may result, sometimes after a long interval of months or years. The development of these inflammatory adhesions can be avoided only by the most scrupulous care on the part of the surgeon to avoid ligaturing large masses of mesentery or omentum, to cover with peritoneum all areas deprived of its protection, and to commence stimulating the intestines to act as soon as possible after the operation by means of the use of paraffin and other agents of a similar character.

Great difficulty may arise from adhesions, the result of previous operations such as appendicostomy, cecostomy, suturing the cæcum to the iliac fossa, resection of part of the transverse colon, shortening of the mesenteries, fixation of the omentum to the abdominal wall, etc. They increase the risk to adhesions. Should obstruction result from this development, it is important that the surgeon should act promptly. Symptoms of obstruction are most liable to develop after the removal of the tube from the rectum. Diarrhea following the operation is due to a partial obstruction, the frequent fluid motions being of the nature of an overflow, as in the analogous case of a leaking, over-distended bladder. This is frequently due to axial rotation of the end of the ileum, or to the imperfect union of the cut edges of the mesentery of the end of the ileum and of the pelvic colon, or to their separation subsequent to the operation, allowing the torsion of the terminal ileum. If evacuations are infrequent, once a day, the intake of 24 hours is retained in the residual portion of the pelvic colon, which comprises only a fraction of the whole large intestine. Consequently it elongates, puddles in the pelvis, and obstructs the effluent from the ileum as effectually as it did before the large bulk of an elongated pelvic colon had been removed by a colectomy.

POTTER, I. W.: **Version.** *American Journal of Obstetrics and Gynecology*, 1921, 1, 560-570.

During the last year the author delivered 1113 women of whom 920 were delivered by version, 400 being primiparæ and 520 multiparæ. The indications are not given, although by reason of experience and much practice the author considers its range of usefulness wide; the author uses it in normal conditions, simply to relieve women of pain by shortening the time of labor. The patient is prepared as for any major operation, shaved, scrubbed and made as clean as possible. The operator is similarly treated and then gowned with short sleeves and long gloves reaching to the elbow. The woman is placed upon the table and anesthetized to the stage of surgical anesthesia. She is then placed in a modified Walcher position, one leg held by an assistant standing on each side, or if no assistants are available, the legs are supported on two chairs while the operator stands between them. The bladder is emptied of all its urine. This is important, as many patients void and still retain a half pint or more of urine in the bladder. The vagina and soft parts are now dilated by first putting in one finger of the gloved hand, well lubricated with green soap and passing it up as high as the cervix and then withdrawing it with a steady continuous and firm pressure. Then two fingers are inserted and then three fingers, and finally the closed fist until all the rugæ and folds of the vagina are thoroughly ironed out. It matters not whether the case be a primipara or a multipara, the procedure can be just as satisfactorily and completely done. Now the cervix which must always be obliterated or soft and easily dilatable before version is ever attempted, is gently stretched with the fingers. Then the outstretched hand and the arm is pushed high up between the uterine wall and the membranes and the latter are gently separated all over by sweeping the fingers of the hand up and down and around, being careful not to work too near the placenta. Next a towel is rolled around the wrist to catch any of the amniotic fluid which might gush out when the membranes are ruptured high up. The hand is now free in the uterine cavity, the position of the child is made out and its probable size estimated, the position of the cord ascertained and the diameters of the pelvis approximated. Both feet are now grasped between the first and middle fingers of the left hand—the left hand is always used for the version no matter what

position the child is in. According to the position of the child, the toes of the feet will either look toward the palm of the hand of the operator or away from it. Now the extraction begins and both feet are brought down to the vulva and delivered together, the child's body having rotated with this onward movement. Slight pressure is sometimes necessary at this stage to lift the head out of either iliac fossa with the right hand. Continued gentle traction is made until the knees are exposed, at which time the version is complete. Now rest for a few moments and then gently pull upon the anterior foot and lower leg until the pelvis of the child comes into view, when it will be seen that the pelvis rotates in the opposite direction and is eventually delivered in that direction. This rotation is brought about by the traction on the lower leg and the baby comes into the world with its back transverse to the pelvic outlet. No attention is paid to the cord at this time if it is free and loose, as it usually is, but if it is tight and short a clamp is placed at the umbilicus and the cord is cut, if it can't be otherwise loosened. We now proceed with the delivery of the scapula which must be always thoroughly exposed and well out in view before any attempt is made to deliver the shoulder. Then the finger and the hand of the operator are pushed well above the shoulder between the lips of the vulva and the anterior shoulder is delivered with the upper arm. The operator now grasps the baby with his hand over the exposed shoulder and chest and rotates the child's body so that the posterior arm comes anterior and is delivered as such. Both shoulders being now delivered the lower arms usually fall out of themselves. If however, they remain undelivered they can be gently lifted up across the chest of the child and drawn away from the perineum under the pubic arch. (You will observe that the baby in this rotation movement is not twisted from the legs as I have seen it done.) The operator now determines whether there is any loop of the cord around the neck and finding none he proceeds with the delivery, but if the cord be twisted once or twice or even three times around the neck this condition of the cord must if possible, be relieved by loosening, and if absolutely necessary, it must be cut and clamped. The fingers of the left hand are now inserted into the baby's mouth and with the right hand gentle pressure is made upon the occiput over the pubes to aid in the flexion of the baby's head, and also to direct its passage through the pelvic canal. The jaw is not pulled on, as a fracture might result. Up to this point

no pressure from the outside has been made in the delivery, because such pressure over the head before delivery of the arms, has a tendency to push the head down, which allows the arms to go up as well as extend the chin, complications, which at all times must be avoided, and the author is sure it is this pressure that makes the difficulties and dangers of other methods of version. By this time the baby's mouth is exposed and the mucus is milked out of the throat by the fingers gently stripping the front of the neck, when the baby will begin to breath and often cry aloud. The head can be left in this position long enough to thoroughly dilate the perineum and vaginal structures, as no haste is indicated and finally the nose is delivered, followed by the brow in an extremely flexed condition which is further assisted by lifting the baby forward and from the perineum. The baby is now placed upon its right side on its mother's abdomen and allowed to remain there until the cord ceases to pulsate. The ligature is now placed around the cord and the cord is cut and a hypodermic of pituitrin, 1 c. c., is given deep into the muscles of the mother. The third stage of labor can now be completed immediately if any indication exists, or the placenta can be left from 15 to 20 minutes and often it is expelled spontaneously. If not, the gloved hand can be introduced and it can be extracted manually. The advantages of this method of version are stated to be:

(1) The woman suffers no pain after the dilatation of the os has taken place. Therefore the second stage with all its suffering is eliminated.

(2) The soft parts are thoroughly dilated and are not for a long time subjected to pressure so that a relaxed, flabby vagina, and torn perineum and prolapsed bladder does not occur in his practice.

(3) He sees no temperature in his cases because tender tubes and ovaries, perhaps many of them the subject of latent gonorrheal infections, are not lighted up into activity by the long pressure and bruising of the on-coming head.

(4) The woman suffers no shock and therefore should be more resistant to possible infection.

(5) There is no bleeding of any moment and the uterus remains contracted and in better condition after the delivery is effected. The lochia is less in amount.

(6) The baby's head is subjected to less compression injury than is the result after a long and tedious labor and especially after a

forceps delivery. Therefore epilepsy and other cranial complications should be less common than after ordinary labors.

(7) Of lesser importance but yet of justifiable consideration, the attending accoucheur is worked less, has more leisure and finds his specialty an agreeable one to practice. Statistics are given as to complications. Thirty-four children died in the hospital, only five of which are not explained, inside of 14 days or before being discharged. Two mothers died after having been delivered by version. One was a poorly nourished woman suffering from a long-standing colitis; the other developed lobar pneumonia.

ANTONIUS, E., AND CZEPA, A.: **Dental Pathology and Internal Disease** (Ueber die Bedeutung infektiöser Prozesse und den Zahnwurzeln fuer die Entstehung innerer Krankheiten). *Wiener Archiv für Innere Medizin*, February 15, 1921, ii, 292.

Foci of infections, which do not communicate with the surface may be the cause of a number of diseases. Bacteria constantly are projected from there in batches and by way of the lymph or blood tract get into the circulation. Or the toxins resulting from them are absorbed, and will cause lesions in parts of the body or in the entire system. These foci may exist for years without causing lesions in other parts of the body. Intoxications of the organism are caused by inflammatory conditions of the lymphatic tissues (the pharyngeal and intestinal constriction), by chronic suppuration of the ear, chronic suppuration of the accessory sinuses, the nose and also by chronic adnexal disease. Furthermore periapical and paradental abscesses of the roots of the tooth are responsible. Periapical abscesses always require an opening of the pulpa for their formation, but they are also seen in apparently healthy teeth. Where the tooth pulp has become gangrenous, bacteria can intrude into the foramen apicale. They penetrate and infect the peridentium. This transportation of infectious material sometimes occurs in the course of dental treatment of gangrenous teeth. In the attempt of cleaning the dental canal, debris will often be shoved upward by nerve needles. The most frequent mode is probably through peridental foci which in mastication are pushed into an area changed by caries and into the pulp canal. Pus, secretory matter, gas are pressed upward through the

foramen apicale. The resulting peridentitis is not always severe enough to afford dental treatment. Sometimes it heals off spontaneously, but it may go on to forming a granuloma, and later a focus of resorption will cause a light space in roentgen pictures, because there resorption of bony structure has taken place. In appropriate treatment it may likewise lead to a chronic form, and it may be impossible to head the periapical abscess from the root canal. Filled teeth may contain abscesses. Dead tissue may be the result of some dental trauma, and the particles may be absorbed by the circulation. In granuloma of the teeth the focus is encapsulated and yet encapsulated foci in other parts of the body may cause a generalized infection. Two hundred and twenty-five patients were examined roentgenoscopically from a dental standpoint and in 148 cases, 66 per cent, inflammation was found in the apex; most of these patients suffered from nephritis or rheumatic diseases, the etiology of which is so far unknown; only 39 cases could be thoroughly treated in a dental way, and the recovery from long-standing recurrent fever, nephritis, etc., could be given as a proof for the teeth being the cause of the pathological condition.

REHFUSS, M. E.: *Analysis of Chronic Gastritis. Pennsylvania Medical Journal*, January, 1921, xxiv, No. 4, p. 233.

The conclusions the author arrives at are:

(1) The normal response is rarely, if ever, subacid, anacid or achylous.

(2) Chronic gastritis is essentially a mucosal disease and finds its expression in alterations in mucosal or secretory activity. Its motor alterations are practically negligible as well as are the roentgen findings.

(3) A persistent subacid or anacid curve involving every portion of the digestive phase in the presence of negative roentgen findings is from our studies, an expression of altered mucosal activity and to us, most probably a form of chronic gastritis.

(4) The essential point in the determination of chronic gastritis, is the determination of a persistent alteration in the secretory output and nearly always eventually downward in trend.

(5) While it is permissible to believe that hypertrophy with an

exaggerated gout, represents one phase or form of chronic gastritis, the great majority are represented by the depressive type.

(6) It is differentiated from the purely functional types by (a) the constancy of the findings, (b) the entire gastric output being affected, and (c) the association of etiological data likely to result.

(7) Mucus is certainly not essential to the picture of inflammations of the gastric mucous membrane of the chronic type. It indicates an involvement of the superficial portion of the mucosa, and as such is most frequently found in the dietary types and those due to the ingestion of irritants, medicinal, alcoholic, etc.

(8) A reduction in the gastric curve can come about in one of four ways: (a) a lack of building material in the blood in certain blood dyscrasias; (b) by neutralization due to the regurgitation of pancreatic secretion; (c) a lack of formation due to alteration in the gastric cell itself; and finally (d) its neutralization by pathologic elements, pus, blood and mucus. The last two belong to true forms of gastritis and are usually readily differentiated from the first two forms.

(9) The following are secretory forms encountered, subacidity, anacidity, achylia, and finally a frequent form, namely, delayed gastric digestion.

(10) In the author's studies he has encountered this form of curve apart from the forms of dietetic gastritis most commonly associated with focal infections. There can be no doubt that this form of curve with the typical clinical picture of chronic gastritis, is completely relieved by removal of obvious focal infections. He has a series of cases to be published, in which the only explanation for altered secretory activity was the presence of focal infections, not alone of the teeth, tonsils, nasopharynx, but of parts of the digestive and urinary tract as well.

(11) With the exception of the primary irritative forms due to ingestion of irritants local treatment can scarcely effect any improvement. Our whole effort should be devoted to etiology. This is possible in associated renal, cardiac, pulmonary, dietetic conditions; it is difficult and frequently impossible in those cases following acute infections. The author confesses his complete inability to throw light on the way influenza, for example, has produced gastric changes, extremely persistent at times, and yet there is no doubt in his mind that at times, active mucosal changes occur.

(12) The author has a series of cases in which vaccination by means of the autogenous vaccines, resulted in a return of the secretion.

(13) We must treat chronic gastritis as a group syndrome which, for the purpose of convenience, is most readily divided into the following groups:

(a) Gastritis due to dietary indiscretion: Ingestion of irritants, excessive ingestion of food, irregular eating, unbalanced dietary.

(b) Gastritis due to medicaments: Purges, salines and drastic salicylates, iodids, mercury opiates, iron, copaiba, santal wood, oil, etc.

(c) Gastritis due to organic disease elsewhere: (1) Cardiac compensation; (2) pulmonary tuberculosis, bronchitis, bronchiectasis; (3) nephritis, nitrogenous and salt retention.

(d) Hepatic cirrhosis with portal hypertension.

(e) Intestinal infections, reversed peristalsis.

(f) Blood anemias, chlorosis, systemic disease.

LEIGHTON, A. P.: **Luteum Extract, a Further Report.** *American Journal of Obstetrics and Gynecology*, March, 1921, 1, No. 6, 613.

He has used ovarian extract in the past 6½ years in over three hundred cases, all private cases. Review of the literature reveals a varying good and bad report. The author has never used ovarian substance entirely.

He has noted ready response to luteum extract in relief of menopause symptoms. In two cases it had been tried by another physician without effect, emphasizing that it should be given sufficient trial, and the product should be of undoubted freshness. In cases of definite signs of thyroid insufficiency he gives it in combination with thyroid extract; again where the hypofunction is not evident, yet the good result is lacking, empirically thyroid extract combined with corpus luteum extract bring better results.

The use of luteum extract in cases of premenopause menorrhagia, brings about marked diminution in the flow, and in menorrhagia, coëxistent with ovarian cystic degeneration, usually lessens the hemorrhage. Dysmenorrhea of obstructive type, is relieved by the corpus luteum extract: softening and digesting the tissue brings about

a normal physiological condition. This condition is described as severe first day pain with scanty discharge and yields to this extract most easily; he warns that the medication demands continuous use of the luteum extract for ten to twelve weeks before the relief is expected.

It is inefficient in any other way.

Relief of the symptoms is especially possible in the menopause; but it is best exhibited in women who show symptoms of early menopause. Begin treatment before they have begun to show the more severe symptoms and the results are especially gratifying. Early control is easy of maintenance. He warns that it takes longer to gain the effect but it is more certain than in other conditions. Of 150 cases altogether, there were not over a dozen failures.

In his experience it has been of benefit in frontal headaches in women which occur periodically in conjunction with menstruation, often accompanied by nausea and vomiting.

In obese patients he uses it if there is evidence of ovarian hypofunction: if given with thyroid he found that it relieved the symptoms which would occur if thyroid were given.

He emphasizes that in prescribing it is best to place on the directions, "These must be given for ten or twelve weeks".

He acknowledges that he is not one hundred per cent successful by any means but he has found it useful in above instances.

SILVAN, C.: **Volvulus of Cecum from Membranous Pericolitis** (Volvula del Cieco da Pericolite membranosa stenosate). *Riforma medica*, January 29, 1921, xxxvii, p. 104.

Pericolitis membranosa, as the disease was called by Jackson, has been considered inflammatory complication of the chronic form of typho-colitis, and has been thought an embryonic lesion. It occurs in connection with the migration, rotation and fusion, during the evolution of the terminal section of the ileum and ascending colon, sometimes in the form of retarded development. A serious change in the author's case had taken place in the cæcum, and caused a distention. Increased mobility was the consequence and a double twist in the longitudinal axis. Such is a grave complication of persistent pericolitis and stenosis.

The patient's father had died, at the age of 45, from chronic enteritis. The author found that he suffered from painful attacks at intervals of from two to three months usually after dietetic overindulgence. He then would suffer from unquenchable thirst. The pain was located in the epigastrium and around the umbilicus, and was of a colicky nature, sometimes on the right side, and sometimes on the left. Nausea, eructation, sometimes vomiting. Sometimes brief periods of diarrhea with mucous and bloody inter-mixture would occur, but without genuine membranes. These attacks occurring more and more frequently caused a nervous condition, feebleness, and emaciation, in spite of an appropriate diet.

Jackson treated of this condition in 1909 and 1913. Then Hall, Cobbe, Cowardine, P. Duval, J. Ch. Roux, Croesen, Council, Hofmeister, Biondi, Donati, Tadder, Leotta and Tosatti took up this study. There was no great number of cases of membranous colitis which were attributed to disturbances in the intestinal circulation, and called for surgical treatment. Deformities and adhesions were found. Besides the pericolic type, which usually was found along the ascending colon, there were cases where the hepatic flexure and the splenic flexure (Quinin) and the sigmoid flexure were involved, also such of the last portion of the ileum and the mesentery with ileo-caecal adhesions. Very frequently a diagnosis of chronic appendicitis with gastro-intestinal symptoms is made.

In the majority of cases, which came under the author's observation, the pericolic membranes were inflamed, and looked fibrous. The structure was not uniform. The peritoneum with its many vessels would cover the intestines, like a shiny veil. In the author's case the symptoms conveyed the impression of an acute gastric disturbance.

SECTION ON
LABORATORY AND RESEARCH

MUSSER, J. H.: **The Leukocytes after Hemorrhages.** *American Journal Medical Sciences*, July, 1921, clxii, Part 1, No. 592, p. 40.

A marked leukocytosis is the general but not the constant rule after hemorrhage, and is of variable duration. The persistence of the leukocytosis would seem to bear a general relation to the severity of the hemorrhage. The leukocytosis is made up largely of an increase in the polymorphonuclear neutrophils. Eosinophils do not disappear from the circulation as they do in the leukocytosis of sepsis and other conditions. The factors which seem to play a part in the pathogenesis of the condition are: retention of the leukocytes in the blood stream during hemorrhage by adhesion to the vessel walls with diminution of blood volume, and, presumably, an outpouring of white cells from the bone-marrow after hemorrhage in response to an unknown stimulus.

A. T. MAYS.

BUNTING, C. H.: **The Leukocytic Picture in Influenza.** *The American Journal of the Medical Sciences*, July, 1921, clxii, Part 1, No. 592, p. 1.

The special features of the blood-picture in influenza are an early neutrophil leukocytosis followed by a sharp drop to a leukopenia, with a marked deficiency in cells of marrow origin, and of blood-platelets and with a lymphocytosis of varying degree. Evidence from Bunting's series of blood-counts is not sufficient to credit this cell absolutely with the destruction of the infecting agent and the establishment of the immunity that is acquired. But it indicates

that the primary infecting agent is not a pyogenic coccus. The great platelet decrease in the blood smears is apparently responsible for the hemorrhagic conditions which arise during the course of the disease. Emphasis is laid on the fact that influenza patients should not be allowed to get out of their beds as soon as the fever subsides but must remain in a quiet and isolated convalescence until the blood-count shows a normal percentage. This may require a week's time.

A. T. MAYS.

MORGAN, H. J.: **An Atypical Bacillus Paratyphosus B Infection.** *Bulletin Johns Hopkins Hospital*, June, 1921, xxxii, No. 364, p. 195.

The author reports a case of general infection secondary to a cystopyelitis in which a bacteremia and septic fever, accompanied by a leukocytosis, persisted for over six weeks. The organism was recovered from the blood on numerous occasions and always corresponded to the *Bacillus paratyphosus B*, both morphologically and culturally, yet serologically it showed marked differences from stock strains of *Bacillus paratyphosus B*. He believes that it belongs to a large group of organisms which have recently come into prominence as a cause of disease (particularly among soldiers). Members of the group have been called by those isolating them as *Bacillus paratyphosus C*, inagglutinable *Bacillus paratyphosus B*, paracolon bacillus, etc., and they all show definite serological differences from *Bacillus paratyphosus B*.

D. LAYTON.

FRAZIER, C. H., AND ADLER, F. H.: **Observations on the Basal Metabolism Estimations in the Goiter Clinic of the University Hospital.** *The American Journal of the Medical Sciences*, July, 1921, clxii, Part 1, No. 592, p. 10.

For convenience of study cases are divided into four groups. Group 1, basal metabolic rate from 10 per cent to 20 per cent; Group 2, from 20 per cent to 40 per cent; Group 3, from 40 per cent to 60 per cent; Group 4, from 60 per cent up. The largest number of cases fell into Group 3. Basal metabolism estimations are of special

value in eliminating those cases which will not be benefited and might be made worse by operation, and in distinguishing cases of true hyperthyroidism from those of neurasthenia, cardiovascular disease or tuberculosis, which present the clinical picture of toxicity and happen to have simple adenomatous enlargement of the thyroid. It offers confirmatory evidence of the degree of toxicity where the only symptom is tachycardia. It acts as a quantitative rather than a qualitative index for use in diagnosis, prognosis, and treatment. The average reduction was greater after ligation than after thyroidectomy. It may be possible to determine how much thyroid tissue may be removed. If the reduction of the metabolic rate is much below the normal range (-10), it means too much secreting substance was removed. Cases fell to -17 per cent and -30 per cent but did not exhibit signs of hypothyroidism.

A. T. MAYS.

HARTMAN, H. R.: **Blood Changes in a Gastrectomized Patient Simulating Those in Pernicious Anemia.** *The American Journal of the Medical Sciences*, August, 1921, clxii, Part 2, No. 593, p. 201.

A patient is described who presented a clinical diagnosis of peptic ulcer with a suspicion of malignancy. Before operation erythrocytes were 5,200,000; Hgb 80 per cent; and color index $0.7 +$. A total gastrectomy was performed. One year later the cytological study of the blood revealed the picture of pernicious anemia, but several clinical features of this condition were lacking. This case suggests that the lack of gastric ferments might cause an incomplete food-splitting process, the results of which might be hemolytic to the blood or detrimental to the blood-making organs.

A. T. MAYS.

BARRINGER, T. B.: **Physical Exercise in Heart Disease.** *The American Journal of the Medical Sciences*, July, 1921, clxii, Part 1, No. 592, p. 103.

After careful observations of patients with organic valvular heart disease and angina pectoris, the author claims that there can be no

excuse, in the majority of instances, for advising heart patients against exercise nor any reason for not being specific and definite when prescribing this therapeutic measure. The response to effort tests, or exercise tolerance, is the best way to ascertain the amount of cardiac reserve power, but it must be of some standard exertion. In 30 persons he has never seen "weakening" of the heart result from even a radical weight reduction, if, at the same time, the patient is exercised properly. It not only increases resistance to infection but also makes the heart itself more resistant to reinfections.

A. T. MAYS.

WEDD, A. M.: **Neurogenic Irregularities of the Heart in Adults.** *The American Journal of the Medical Sciences*, July, 1921, clxii, Part 1, No. 592, p. 49.

Sinus arrhythmia is an expression of the irregularity of the antagonistic forces of the vagal and sympathetic nerves, and is probably brought about by a periodic increase in the activity of the weaker system to restore a more perfect balance if possible. Preponderance of either vagus or sympathetic tonus in itself, such as is seen in vagotonia of hyperthyroidism, does not necessarily cause arrhythmia. In adult vagal irregularities it is important to determine the source of abnormal stimulation; and the important seat of formation of afferent impulses that may affect the cardio-inhibitory center is the heart and aorta. Pathological conditions may give rise to impulses in the heart which result in sensations of pain; so it is believed that in other abnormal conditions impulses may form in the heart or aorta, which, transmitted by the afferent fibers of the vagus or the cardiac depressor nerve to the inhibitory center will become manifest as disturbances of the cardiac mechanism.

A. T. MAYS.

SMITH, F. M.: **Clinical Observations on Paroxysmal Auricular Fibrillations and Flutter.** *American Journal of Medical Sciences*, July, 1921, clxii, Part 1, No. 592, p. 13.

Eleven case histories are given. In 6 instances they were auricular fibrillation and in 5 auricular flutter. Patients with auricular

fibrillation were conscious of the onset of the attack. Four had symptoms of myocardial failure. In one the initial attack appeared at the time the patient felt overworked, and when his general health improved he was free for four years, even though he worked very hard. Another patient, after removal of infected teeth and diseased tonsils, showed marked improvement. One patient with auricular flutter was conscious of the attack. All with flutter had marked structural changes of the heart. One had an additional hyperthyroidism. All were short of breath and one had anginal pain attacks. Both the arrhythmias named may occur in the same type of cardiac condition, and occur in the majority of patients who have a failing myocardium, and present themselves at the time of impending cardiac decompensation. They may subside as the cardiac reserve is improved. Experimentation has proved that stimulation of the right vagus produces auricular fibrillation, and stimulation of the left gave an electrocardiogram similar to that of auricular flutter. In some instances flutter may be changed to fibrillation by digitalis.

A. T. MAYS.

HIRSCH, E. F.: Charges in the Alkali Reserve, Sugar Concentration, and Leukocytes of the Blood in Experimental Infections. *The Journal of the Infectious Diseases*, July, 1921, xxix, No. 1. p. 40.

The observations reported are from an experimental study in rabbits to determine the effect on blood sugar concentration of intravenous injections of suspensions of living pathogenic bacteria paralleled by estimations of the alkali reserve of the whole blood and by determinations of the number of leukocytes. The bacteria used were *Bacillus typhosis*; *Bacillus paratyphosus*, A; *Bacillus paratyphosus*, B; *Bacillus dysenteriae* (Flexner); *Bacillus Friedländer*; *Bacillus coli*; *streptococcus hemolyticus*; *pneumococcus*; and *Bacillus Welchii*. He concludes that depression of the alkali reserve of the blood in rabbits by intravenous injections of pathogenic bacteria is accompanied by a transient hyperglycemia, the degree of hyperglycemia apparently depending upon the extent of alkali reserve diminution. Subcutaneous administration of carbonate or bicarbonate solutions does not prevent the acidosis produced by these injections of

bacteria. Injections of acid potassium phosphate solutions depress the alkali reserve of the blood, this lowered alkalinity being associated with a hyperglycemia and by changes in the number of leukocytes similar to those following injections of bacteria. The concentration of sugar in the blood seems to be independent of the changes in the number of leukocytes.

M. M. BÄNOWITCH.

ROWE, A. S.: **The Value of Basal Metabolism Studies in the Diagnosis and Treatment of Thyroid Diseases.** *The American Journal of the Medical Sciences*, August, 1921, clxii, Part 2, No. 593, p. 187.

The metabolic rate determinations are a great aid in a diagnosis of early and obscure cases of hyperthyroidism, and in such cases the degree of severity of an obvious hyperthyroidism can be determined. The presence or absence of toxicity of an adenomatous thyroid is made evident through these metabolic studies. Surgeons are recognizing value of this as a guide for thyroidectomies. Finally, in the diagnosis of hypothyroidism, and in directing and gauging thyroid administration metabolic rate determinations are of the greatest importance.

A. T. MAYS.

ANDERSON, H. B.: **Some Observations on the Use of Arsphenamin: Its Effect on the Kidneys and Its Therapeutic Results.** *The American Journal of the Medical Sciences*, July, 1921, clxii, Part, 1, No. 592, p. 80.

Kidney functional tests were made on 39 cases, with approximately thirty doses of arsphenamin consisting of 4.6 decigrams (7.09872 grains) each distributed over a period of a little over two years. No evidence of injury to the kidneys was found. The Wassermann reaction must be used to determine the efficiency of any method of treatment. It is more trustworthy to use at least two antigens; the acetone insoluble antigen is a safe guide to diagnosis and the alcoholic extract reinforced by cholesterin is an excellent guide to treatment.

It is impossible to conclude how much arsphenamin and how many courses of mercury may be necessary to produce a negative Wassermann reaction in any given case. Six injections of arsphenamin and one course of mercury may produce one negative Wassermann reaction, but the average case of secondary or tertiary syphilis requires twelve or more doses with a corresponding amount of treatment with mercury.

A. T. MAYS.

TAYLOR, S. P., AND TAYLOR, K. P. A.: **Polariscopic Study of Urines of a Group of Syphilitics.** *The American Journal of the Medical Sciences*, July, 1921, clxii, Part 1, No. 592, p. 47.

The urines of 50 syphilitics undergoing neoarsphenamin treatment were examined, centrifugalized and under a microscope with two Nicol prism attachments. All patients were males from 17 to 72 and none evidenced any clinical signs of nephritis. Seventy-two per cent showed albumin, and 44 per cent albumin with casts. All failed to show the double refractile lipoids.

A. T. MAYS.

LAMBRIGHT, G. L.: **Urticaria, Classification of Types and Its Causes.** *The American Journal of the Medical Sciences*, August, 1921, clxii, Part 2, No. 593, p. 183.

The author has studied urticaria over a period of two years, following the lines outlined by various writers for the study of hay-fever, asthma, and eczema, that is by means of cutaneous tests, using food, bacterial, animal, and pollen proteins. It is one of the ways to discover sensitive individuals. The following classification is useful, being based upon etiological lines. Those non-sensitive to proteins, and those sensitive to proteins. Under the nonsensitive division are classed neuropathic, chemical, and constitutional varieties. The sensitive group is divided into seasonal (pollens, bacteria, foods, animal proteins); and nonseasonal (foods, bacteria, animal proteins). While his results have been satisfactory in these cases, a much larger proportion of nonsensitive cases have been encountered.

A. T. MAYS.

BROWN, W. H., AND PEARCE, L.: 1. **Superinfection in Experimental Syphilis Following the Administration of Subcurative Doses of Arsphenamin or Neoarsphenamin.** *The Journal of Experimental Medicine*, May 1, 1921, xxxiii, No. 5, p. 553.

Within the past few years the literature has contained many reports of reinfection following treatment with arsphenamin or neoarsphenamin. Where the evidence of a new infection seemed sufficient the general tendency has been to accept such infections as proof of a cure. This would appear to be a logical interpretation unless it were shown that under circumstances of the same nature, superinfection becomes possible.

Experiments were carried out upon 2 sets of rabbits—one with arsphenamin and the other with neoarsphenamin to determine the influence of these drugs upon syphilitic immunity and infection. These were infected and then treated and later reinoculated to determine their susceptibility to a new infection as indicated by the production of lesions at the site of inoculation.

Reinoculation of treated animals gave results which were strikingly different from those of the infected controls. All but two developed typical lesions with lymphadenitis and spirochetes in abundance. The incubation period of these cases coincided with that of controls on the normal.

Of 5 animals treated with arsphenamin and then reinoculated, the original lesions were completely resolved in only one instance and relapse occurred within thirty-three days in 4 of the 5 animals, including the one animal whose lesions had been resolved. The fifth animal showed the least reaction. By reinoculation characteristic chancres were produced in all the animals of the group.

* The results after treatment with neoarsphenamin were not so uniform. The testicle lesions were quickly resolved in 2 of the 5 animals and in a third the testicles were slightly enlarged and thickened. Clinical relapse occurred in the other animals of the group. Characteristic chancres were obtained from the second inoculation in 3 of the 5 animals on both the ear and sheath. The other 2 animals gave only diffuse or papular infiltrations.

The results of the experiments showed (1) that the treatment employed was insufficient to cure any of the therapeutic controls; (2) that infected controls were highly refractory to a second inocula-

tion; (3) treated animals were highly susceptible to a second inoculation and although not cured of their original infection, reacted to the second inoculation with the formation of lesions indistinguishable from those of a first infection; and (4) that in certain instances the treatment given had rendered the infected animals more susceptible to infection than the normal controls.

H. M. FEINBLATT.

BUNTING, C. H., AND HUSTON, J.: **Fate of the Lymphocyte.** *Journal of Experimental Medicine*, May, 1921, xxxiii, No. 5, p. 593.

It seems to be generally accepted that the lymphocytes are produced by the lymphoid tissue of the body and to a minor extent by the bone marrow. These cells gain entrance into the lymph-stream and then to the major lymph trunks. From the latter, chiefly the thoracic duct, the cells get into the blood stream.

In studies made upon rabbits direct counts were made upon the fluid in the thoracic duct immediately after the death of the animals. From 20,000 to 50,000 cells were found per cubic millimeter of fluid. Of these, 80 per cent were small lymphocytes and 20 per cent large. Leukocytes and red cells are not normal constituents of the thoracic duct lymph.

It is assumed by the author that a billion or more lymphocytes enter the blood from the thoracic duct in the course of a day.

Experiments were made to determine the rapidity of the disappearance of lymphocytes from the blood. Male rabbits, from 1500 to 2,000 grams (3.3 to 4.4 lbs.) in weight, were splenectomized, and upon recovery were operated upon again and the lymphatic trunks ligated. One animal showed a drop in lymphocytes of 1,826 in 5 hours, and another showed a drop of 4,430 in 6 hours. Later both these animals showed a return to normal.

From the authors' study of the fate of the lymphocyte, they conclude that these cells migrate from the blood-vessels into the mucous membrane and through them to the surface. This occurs chiefly in the gastro-intestinal tract, and it is apparently in the mucosa and in the intestinal lumen that the function of the lymphocyte is normally performed.

H. M. FEINBLATT.

ADACHI, K.: **Flagellum of the Microorganism of Rat-bite Fever.** *Journal of Experimental Medicine*, May, 1921, xxxiii, No. 5, p. 647.

The investigation confirms the work of other authors upon the microörganism of rat-bite fever. The organism can be seen in the dark field, will stain with an alkaline Giemsa and is best fixed in the vapor of osmic acid. The organism is flagellated, having multiple flagella which wind about each other forming larger flagella which are usually at the ends of the organism. In some, flagella were seen arising from the middle of the body. The morphology of the organism indicates that it is a spirillum.

H. M. FEINBLATT.

MACKENZIE, G. M., AND LEAKE, W. H.: **Relation of Antibody and Antigen to Serum Disease Susceptibility.** *Journal of Experimental Medicine*, May, 1921, xxxiii, No. 5, p. 601.

Longcope and Rackemann reported observations on the precipitin, anaphylactic antibody, and cutaneous hypersensitiveness in individuals to whom serum had been given therapeutically. Of the group studied 2 were found who developed no serum disease and in these no precipitin was found in the blood. The authors in this paper add to the investigation of the relations between precipitin formation and the symptoms of serum reactions. Further studies were made to determine whether or not the disappearance of horse serum from the circulation can be brought into relation with precipitin formation or the symptoms, and of the factors concerned in the non-susceptibility of certain individuals to serum sickness.

The report includes studies upon 19 patients to whom foreign serum had been administered. These could be divided into groups from the viewpoint of circulating precipitin, persistence of precipitinogen, and severity of symptoms.

Group I had the following characteristics: (1) Severe serum disease lasting seven days or more; the reaction was marked by the appearance of an eruption, edema and arthralgia; (2) a relatively high titer of precipitin appearing at its height near the time that the symptoms are subsiding; and (3) disappearance of precipitinogen

from the circulation near the termination of the symptoms of serum disease; eleven of the 19 patients fell into this group.

In Group II there were four; this group gave either very mild symptoms or no reaction at all; no precipitin was found in the circulation and a positive precipitinogen reaction was found during the entire period of observation—from 52 to 67 days.

Group III is an intermediate group; there were 3 cases so classified which gave a mild serum reaction with a very low titer of precipitin in the circulation.

The results of this investigation lend further support to the conception that serum disease is without doubt an antigen antibody reaction.

H. M. FEINBLATT.

MUDD, S., GOLDMAN, A., AND GRANT, S. B.: Reactions of the Nasal Cavity and Postnasal Space to Chilling of the Body Surface. I. Vasomotor Reactions. *Journal of Experimental Medicine*, July, 1921, xxxiv, No. 1, p. 11.

The authors have shown in earlier communications that chilling of the body surface caused reflex vasoconstriction and ischemia in the mucous membranes of the palate, tonsils and pharynx. This paper describes a like reflex diminution in the blood supply of the nasal cavity and nasopharynx.

By means of thermopiles, the terminals of which were held in stable opposition with the mucous membranes of the nasal cavity and nasopharynx, temperature variations were studied in these areas following chilling of the body surface. All cases studied showed definite depression of the temperature of the nasal mucosa surface, amounting to as high as 6° C. (42.8° F.), indicating marked reflex vasoconstriction and diminution of blood supply. With re-wrapping, partial recovery of blood supply promptly occurs, although recovery is not complete for the period of the experiment.

Where there was no direct nasal irritation, discharge from the nose was a rare occurrence, while, where direct nasal irritation was present a discharge took place often associated with lachrimation and sneezing.

H. M. FEINBLATT.

CHURCHMAN, J. W.: **Further Studies on the Behavior of Bacteria Toward Gentian Violet. Isolation of a Gentian-Positive Strain from a Culture of a Gentian-Negative Organism (a "Strain-within-a-strain" Variant).** *Journal of Experimental Medicine*, May, 1921, xxxiii, No. 5, p. 569.

If divided plates are poured so that each half receives a heavy inoculation of *Bacillus coli*, numerous colonies appear in both halves. A similar experiment with *Bacillus subtilis* shows complete sterility of the gentian violet side. Using increasingly weak dilutions of the *Bacillus coli* emulsions, the number of colonies become fewer on the gentian side of the plate and finally disappear.

A single colony taken off the agar side of a divided plate and stroked over divided plates showed some growth on the gentian side as well on the agar (plain) side. Stroking of divided plates with suspensions of the separate colonies yielded two strains of the organism; one, Strain X, grows well in the presence of gentian violet, while the other, Strain Y, will not grow at all when this dye is present.

About 90 per cent of gram-positive organisms are killed by the exposure to the dye and will not grow on media which contain it; about 90 per cent of the gram-negative organisms grow well after exposure to the dye, and their growth seems unaffected by the presence of the dye in the media.

The selective bacteriostatic action of gentian violet has been demonstrated by experiments to be applicable to the treatment of infections. In certain types of acute joint infections, staining of the synovial membrane led to prompt clinical cure. It was found efficacious in ridding granulating surfaces of certain organisms.

H. M. FEINBLATT.

GRATIA, A.: **Studies on the D'Herelle Phenomenon.** *Journal of Experimental Medicine*, July, 1921, xxxiv, No. 1, p. 115.

About three years ago d'Hérelle found that stools of patients recovering from bacillary dysentery contain a filterable substance which is able to dissolve cultures of the Shiga bacillus and that a few drops of the dissolved culture reproduces the same phenomenon upon addition to another culture, and so on indefinitely. Through these dif-

ferent passages the lytic property, instead of decreasing by dilution is increased and retains its activity even after several years. This transmission of lytic property occurs only by transfer into living cultures of bacillus Shiga. D'Hérelle considered the lytic agent a filterable virus parasitic to the Shiga bacillus and named this virus bacteriophage. He discovered similar bacteriophages for *Bacillus coli*, *Bacillus typhosus*, *Bacillus paratyphosus*, A and B, et als.

Bordet and Ciuca observed that a culture of *Bacillus*, once dissolved by an immunized exudate (obtained from the peritoneal cavity of a guinea pig injected intraperitoneally three times at five-day intervals with cultures of *Bacillus*) can dissolve a second culture of *Bacillus coli* or inhibit its growth. But neither the dissolution nor the inhibition is complete, since a few organisms resist and multiply. The latter bacilli are distinguished from the original culture by certain characteristics: they resist the lytic agent but themselves have acquired the lytic property and have become lysogenic, or capable of causing dissolution of a culture of normal *Bacillus coli*. Moreover when planted on slant agar, a mucoid, sticky culture results. They are less phagocytal and more pathogenic for guinea pigs than the normal *Bacillus coli*. All these properties are preserved even after passage through animals.

Thus there seems to arise under the influence of the lytic substance a race of bacilli which is adapted to this substance and is characterized by new and transmissible properties such as increased virulence. Bordet and Ciuca call this race "modified *Bacillus coli*" and they infer that under the influence of the peritoneal exudate mentioned a variation of the colon bacillus occurs in the sense that they now secrete an autolysin which dissolves their own cells, with the exception of a few resistant organisms which survive and continue to produce the lytic secretion. Hence Bordet and Ciuca conceive the phenomenon to be that of a transmissible microbial autolytic property.

The facts outlined are of fundamental importance and relate not only to the problems of lysis itself but to such disputed questions also as the appearance of new races, the heredity of acquired characteristics, and the nature of virulence.

The authors found that lytic power to cultures of *Bacillus coli* was greatest in alkaline media pH 8 or 8.5 and less so in acid broth (pH 6.8).

Two types of organisms were isolated from an original strain of *Bacillus coli*, one (Type S) is sensitive to the lytic agent, the other (Type R) much more resistant. Type S is non-motile and grows more quickly on artificial media, while Type R is extremely motile, grows more slowly, is much less phagocytal and more virulent. Both types ferment carbohydrates and produce indol with the exception of saccharose. Both types keep their individuality after animal passage. A culture of a single type is not a homogeneous whole but is made up of organisms of varying resistance to the lytic agent; only a few are resistant enough to overcome the action of undiluted lytic agent. On the other hand only a few are sufficiently sensitive to be dissolved by even a very dilute lytic agent.

The original lytic agent was found to be specific; it acted exclusively on the coli with which the guinea pigs were injected. By allowing this original lytic principle to act on broth cultures of the two types of *Bacillus coli*, two new filtrates were obtained. The first resulting from dissolution of the sensitive strain S is specific, as was the original filtrate. From the second, obtained from the resistant strain R, was obtained a marked action on Flexner, Shiga and Hiss dysentery bacilli. In consequence of this observation the author was able by a method of successive passages through appropriate strains to extend the lytic power to other species, as typhoid and paratyphoid bacilli.

H. M. FEINBLATT.

PILOT, I., AND PEARLMAN, S. J.: Bacteriologic Studies of the Upper Respiratory Passages. I. Hemolytic Streptococci of the Adenoids. II. The Pneumococci and Nonhemolytic Streptococci of the Adenoids and Tonsils. III. The Influenza Bacilli (Pfeiffer) of the Adenoids and Tonsils. *The Journal of Infectious Diseases*, July, 1921, xxix, No. 1, p. 47.

Part I.—The present work is the result of cultures made from the adenoids of 103 children. Hemolytic streptococci are common in the nasopharynx and nasopharyngeal vegetations. Hemolytic streptococci were recovered in 55 per cent of cases from the surface of the adenoids; in 61 per cent from the depths between the folds and crypt-like depressions of the same persons; and the excised tonsils

of the same persons revealed hemolytic streptococci in still larger numbers in 95 per cent. The streptococci agree in their morphology, cultural characteristics, fermentation reactions and pathogenicity, and are practically identical with hemolytic streptococci from various human sources. The adenoids like the tonsils are to be considered as common foci harboring hemolytic streptococci.

Part II.—In a series of 103 adenoids, pneumococcus occurred in 65 per cent, 2 per cent of which were type 2, 13 per cent type 3, and 85 per cent type 4. In the nasopharyngeal swabs of 21 persons the pneumococcus was recovered in 71.4 per cent; from the tonsils of the same persons in 66.6 per cent, and from the adenoids in 71.4 per cent. It was observed that in the depths of the folds and the crypt-like depressions of the nasopharyngeal vegetations and from the tonsillar crypts the pneumococci were decidedly more numerous than in the swabs. In 4 instances the pneumococci occurred practically in pure culture from the adenoids. *Streptococcus viridans* was found in 89 per cent of the adenoids and 81 per cent of the tonsils. *Streptococcus mucosus* was encountered in 3 per cent of the adenoids, and indifferent streptococci in 12 per cent. The adenoids and tonsils are foci in which pneumococci and nonhemolytic streptococci commonly flourish.

Part III.—Gram-negative, pleomorphic, hemoglobinophilic bacilli, showing a preference for heated blood agar and revealing the characteristic property of symbiosis, were isolated and identified in 40.9 per cent of extirpated adenoids and in 53.9 per cent of the excised tonsils from 115 persons. In the nasopharynx they were present in 40 per cent of 25 persons and in few numbers. The tonsils and adenoids are therefore foci in which influenza bacilli (Pfeiffer) commonly flourish.

M. M. BANOWITCH.

ROUS, P., AND MCMASTER, P. D.: **The Concentrating Activity of the Gall-bladder.** *Journal of Experimental Medicine*, July, 1921, xxxiv, No. 1, p. 47.

Bile coming from different portions of the liver at one time was found to have nearly the same amount of pigment per volume of bile.

Experiments were made upon a series of dogs to determine the power of the gall-bladder to concentrate bile directed to it, using as a criterion the pigment strength of samples collected from a duct branch. A gall-bladder emptied at the beginning of one experiment and left to fill from the liver, concentrated the 49.8 c. c. of bile reaching it in twenty-two and one half hours to 4.6 c. c., that is to say reduced its bulk 10.8 times. A series of five empty gall-bladders concentrated the bile coming to them in twenty-four hours on the average 7.1 times.

The rapidity with which fluid is withdrawn through the walls of the bladder may be judged from an experiment in which a bag was connected with the tip of the organ by a large canula. Merely in its passage through the bladder the bile was concentrated from 2.3 to 4.8 times.

It was observed that the bile-ducts did not absorb any of the secretion they conveyed but tended to dilute it.

H. M. FEINBLATT.

WILLIAMS, A. W., NEVIN, M., AND GURLEY, C.: **Studies on Acute Respiratory Infections. I. Method of Demonstrating Microorganisms, Including "Filtrable Viruses", From Upper Respiratory Tract in "Health", in "Common Colds" and in "Influenza" with the Object of Discovering "Common Strains".** *The Journal of Immunology*, Jan., 1921, vi, No. 1, p. 5.

Results.—(1) From aërobic cultures of non-filtered material, growths differ markedly, depending upon the media used. The most abundant occurred in vitamin medium for all groups. On Avery's oleate agar, chiefly influenza bacilli, and certain gram-negative cocci and other Gram-negative bacilli grew. Meningococci grew poorly on this, while gonococci grew well. On veal-blood-drop plates and Brown the proportion of influenza bacilli was less.

(2) From anaërobic cultures of non-filtered washings, no filtrable organisms were found.

(3) From anaërobic cultures of filtered washings, in 6 out of 40 such washings anaërobic organisms were isolated. Two cases gave Gram-positive non-hemolytic streptococcus; one gave a diphtheroid; two a Gram-negative coccus; and one case a Gram-positive coccus.

Meat cultures were all filtered through Mandler filters. No growth occurred in any of the cultured filtrates.

(4) From anaërobic cultures of filtered washings, growths were obtained in 4 out of 10 cases of influenza. From 7 filtrates from early colds the authors were unable to infect 45 human volunteers.

Conclusion.—The method of collecting and handling material is more comprehensive than has been given before, therefore the colony fishings are more likely to be representative of a dominant type, if one exists. The procedure has also shown increased incidence in mucous membrane inflammations of certain minority groups due to an increase of one type of organism which might have a relationship to acute inflammations of the upper respiratory tract.

W. LINTZ.

EINHORN, M.: **Studies on the Action of Various Salts on the Liver after their Introduction into the Duodenum.** *New York Medical Journal*, Feb. 19, 1921, p. 313.

About four years ago Meltzer suggested the use of magnesium sulphate in injections into the duodenum for the relief of biliary colic. He believed the colic to be caused by a spasm of Oddi's sphincter. He thought that the relaxing effect of the remedy would relieve the pain.

Lyon used magnesium sulphate instillations into the duodenum in order to relax the sphincter of Oddi, and at the same time produce a contraction and emptying of the gall-bladder. He then used the magnesium sulphate injections, 75 c. c. of a thirty-three per cent solution into the duodenum, for diagnostic purposes. He believed he could collect this fluid from the duodenum by siphonage for half an hour or more after the magnesium injection, to obtain the bile separately from the common duct, the gall-bladder and the liver.

It appears that the sulphate part of the salt (magnesium, sodium) is in part the instigator of the color reaction, although there are other substances which do the same. It is probable that the sulphates, when excreted by the liver with the bile, undergo the changes in color.

"Next to these substances the high concentration of the salts introduced may have something to do with the increased outflow of the bile and other juices. The former causes a disturbance in the normal

salt level of the blood and provokes a defensive action in the neighboring organs to counterbalance the evils. Thus the liver, pancreas, duodenum, and probably also the stomach are brought to increased functional activities."

OLITSKY, P. K., AND GATES, F.: **Experimental Studies of the Nasopharyngeal Secretions from Influenza Patients. V. Bacterium Pneumosintes and Concurrent Infections.** *Journal of Experimental Medicine*, July, 1921, xxxiv, No. 1, p. 1.

Bacterium pneumosintes, a filterable anaërobic organism, is considered by the authors as the active agent in nasopharyngeal secretions in influenza. The present paper has to do with the activity of this organism in reducing pulmonary resistance in experimental animals.

Animals given intratracheal inoculations of the above organisms and then twenty-four hours later inoculated with a Type IV pneumococcus intravenously developed an active infection with more or less extensive lobar or bronchial consolidation, hemorrhagic edema and emphysema.

Animals injected with the cultivable organism alone developed the edema and emphysema but not the consolidation. Control animals given only the pneumococcus developed no visible lung lesions. It is therefore evident that the Bacterium pneumosintes acts in the same way as that of the nasopharyngeal secretion of influenza patients in reducing the resistance of the lung to infections with other organisms.

H. M. FEINBLATT.

CRAIG, C. F., AND WILLIAMS, W. C.: **Experimental Observations upon the Effect of Cholesteremia on the Results of the Wassermann Test.** *The American Journal of Syphilis*, July, 1921, No. 3, p. 392.

A number of articles have recently appeared in the literature in which claims have been made that the presence of an increased amount of cholesterol in the blood will cause positive results with the

Wassermann test and that such results may be obtained in non-syphilitic individuals if a cholesterol reinforced antigen be used in the test. In order to observe the effect of cholesteremia upon the Wassermann reaction, 10 rabbits were selected, 5 for feeding experiments, and 5 to act as controls.

As a result of the study the authors conclude: (1) The feeding of 1.25 grams (19.316 grains) of cholesterol, per kilo (2.61 lbs.) of body weight, to rabbits results in an enormous accumulation of cholesterol in the blood, and accumulation that persists, in some instances, for several days after the feeding is stopped.

(2) The hypercholesteremia produced by feeding rabbits large amounts of cholesterol does not cause the blood-serum of these animals to give a positive Wassermann reaction.

(3) There is no relationship between the cholesterol content of the blood-serum of rabbits and the results of the Wassermann test, all of the animals experimented upon giving a consistently negative reaction despite the enormous increase in the cholesterol content of their blood-serum resulting from the feeding of this substance.

M. M. BANOWITCH.

ROUS, P., AND McMASTER, P. D.: **Physiological Causes for the Varied Character of Stasis Bile.** *Journal of Experimental Medicine*, July, 1921, xxxiv, No. 1, p. 75.

The fluid observed at operation in the obstructed bile passages in human beings is of notably various character. Cases free of infection may show all gradations, between the tarry black material and the watery, "colorless white bile." The causes of this diversity are not immediately evident clinically. Infection aside, it would seem that the different and in general opposed function of the gall-bladder and ducts are principally responsible.

Experiments were carried out upon dogs, cats and monkeys. Obstruction of the bile-ducts was produced by tying and cutting, or by ligature alone. In 16 dogs, 2 cats and one monkey, obstruction of the common duct was produced, or of one or more of its hepatic tributaries in such wise that the gall-bladder still communicated with the channels in stasis. In animals killed after two to four days the gall-bladder and ducts were distended with a thick syrupy, dark

brown bile. The stasis bile in three or four weeks in the bladder underwent but little further change while the fluid in ducts gradually thickened to a jelly which gave the Hay's reaction for bile salts in high dilution.

The contents of ducts separately ligated and of the obstructed common duct blocked off from the gall-bladder were entirely different.

In another series of twenty-six animals the common duct was obstructed and the gall-bladder neck as well. The stasis fluid in these instances was at first brown, then green and finally, after 10 days or more of stasis, clear, and often colorless, even in jaundiced animals. In some it was but a pale yellow, and usually without sufficient choleates to give Hay's or Udranzky's test.

In twenty-five other animals obstruction was so placed in the bile channels that some of the ducts in stasis were deprived of their connection with the gall-bladder, while others still possessed it. At autopsy both sets of ducts were found equally distended, the one with a heavy green bile giving Hay's test in great dilution, the other with the colorless fluid above described.

It seems clearly evident how the contents of the green system, as we may call the one connecting with the gall-bladder during stasis because of the characteristic hue, comes to be highly pigmented and at last tarry. The change from brown to green is due to simple oxidation of bilirubin to biliverdin. The thickening to a heavy syrup and eventually to a jelly occurs through the gradual accumulation of a mucinous nucleoprotein which is a normal product of the gall-bladder mucosa.

The ducts fail to concentrate and thicken the bile with mucus, but give a secretion that is colorless; this secretion tends to dilute the small amount of bile that may be present. In obstructed ducts separated from the gall-bladder this secretion replaces the small amount of bile pent up and gives rise to the so-called "white bile".

The differing influences of the ducts and bladder upon the bile must obviously have much to do with the site of origin of calculi and their clinical consequences. The concentrating power of the bladder must be a potent factor in the formation of stones. Patients with a tendency to stone formation could be helped by frequent feedings.

H. M. FEINBLATT.

SECTION ON PEDIATRICS

PILOT, I.: V. The Diphtheria Bacilli and Diphtheroids of the Adenoids and Tonsils. *Journal of Infectious Diseases*, August, 1921, xxix, No. 2.

Cultures made of the excised adenoids of 100 children showed *Bacillus diphtheriae* in 12. The crypts of the extirpated faucial tonsils of the same persons harbored the bacilli in 12. When present in the tonsils the bacilli also occurred in the adenoids of the same persons. In the tonsillar crypts the diphtheria bacilli were usually more numerous than in the adenoids. Two of the 12 strains were virulent; one showed attenuated virulence; three were pathogenic in large doses of the first culture while subsequent cultures were without virulence; the remainder were totally avirulent. Diphtheroids occurred in 30 of the adenoids and in 17 of the tonsils; when present in both they were decidedly more numerous in the nasopharyngeal vegetations than in the tonsillar crypts.

M. M. BANOWITCH.

DE VILLAYERDE, J. M.: Syringomyelia in Children. *Archivos Espanoles de Pediatria*, June, 1921.

De Villaverde reports a case of syringomyelia in a girl of fifteen years in whom the first symptoms appeared eighteen months previously. He mentions other cases where the diagnosis was not so certain. He states that under the general term syringomyelia there are grouped processes which are different anatomically and pathologically, but which have the same or similar symptoms. Of these processes the most frequent are central medullary gliomatosis, and central gliosis accompanied by hydromyelia.

The latter is a process which ordinarily is classed with the malformations of the cord, which is at least congenital if not fetal in its origin. Histologically it is characterized by a dilatation of the central canal of the spinal cord with which is associated a zone of neuroglia tissue of the fibrous type extending more or less into the gray matter. Not infrequently, this lesion, while congenital and permanent, shows no manifestation of its existence and is found only during the routine of a necropsy.

In other cases symptoms appear at a more or less advanced period of life, and then either progress or become stationary at any stage. It is logical to suppose that a preponderant extension of the process to the anterior horns of the gray matter of the spinal cord produces paresis with muscular atrophy, whereas extension posteriorly causes disturbances of sensation and disassociation symptoms.

W. H. DONNELLY.

LEVINE, S. A.: **The Diagnosis of Paralytic or Early Poliomyelitis.** *The Boston Medical and Surgical Journal*, August 25, 1921, clxxxv, No. 8, p. 238.

The purpose of the author in his brief report, is to emphasize a few points which will aid in the early diagnosis of poliomyelitis. During the preparalytic stage there are certain symptoms and signs which are of great aid. Fever is always present in this stage. Headache and vomiting are common. More important is a history of pain, most frequently in the back of the neck or along the spinal column, in the limbs, or abdomen. The physical findings are more important and more constant. Stiffness of the neck and resistance to flexion have been present in practically all early cases, and the Kernig sign in most cases. The reflexes at this stage, like the pupillary reactions, are too vague to help. Lumbar puncture will prove or disprove the diagnosis and should be done in every case where poliomyelitis is suspected. If the fluid cell count is normal one can practically rule out poliomyelitis. No case of poliomyelitis has been seen by the Harvard Infantile Paralysis Commission, either during the epidemic of 1916 or the present one, with a normal cell count in the spinal fluid. If the fluid is clear with increased cell count, the diagnosis is most likely poliomyelitis. The only confusing possibilities

are tubercular meningitis, mumps, syphilis of the central nervous system, and encephalitis lethargica. A clinical consideration of the case generally is sufficient to appraise the likelihood of the latter conditions.

M. M. BANOWITCH.

O'KEEFE, E. S.: **Eczema in the Breast-fed Baby, and Protein Sensitization.** *Boston Medical and Surgical Journal*, August 18, 1921, clxxxv, No. 7, p. 194.

Forty-one cases of eczema in breast-fed babies were studied. Of these 25, or 61 per cent, showed a positive reaction to one or more proteins used. Seventeen were positive to one of the egg proteins, 16 to one of the cow's milk proteins, 2 to oats and 1 to wheat. Sensitization to food proteins can occur in the breast-fed in no other way, apparently, than through foreign proteins ingested in the breast milk. Acting upon this theory it has been a routine procedure to omit, or at least to limit, in the maternal diet the food or foods to which the nursing shows a cutaneous reaction. At the same time external treatment was applied. An analysis of the treatment shows that 17 of the 41 were entirely relieved; 9 showed definite improvement.

PEABODY, F. W.: **A Report of the Harvard Infantile Paralysis Commission on the Diagnosis of Acute Cases in 1920, with Special Reference to the Incidence of Cases without Paralysis.** *The Boston Medical and Surgical Journal*, August 11, 1921, clxxxv, No. 6, p. 174.

The epidemic of 1920 proved to be a small one. Of 133 cases studied, in only 75 a definite diagnosis of poliomyelitis was made and in 7 was tentatively made but not confirmed. Lumbar puncture was performed in 54 cases, in 19 of which poliomyelitis was excluded, and the cell-count was 12 or less per cubic millimeter in 18 cases, and 114 per cubic millimeter in 1 case, which proved on further study to be a syphilitic meningitis. Of 15 cases in which paralysis was present the cell-count varied between 14 and 153 per cubic milli-

meter in 11, and in 4 was twelve or less. A review of the therapeutic results since 1916 left the Harvard Commission unconvinced as to the demonstrated value of any method of treatment and they decided in 1920 that they would not make any representations with regard to specific treatment in the acute stage. The Commission offered the services of its representatives simply as diagnosticians, and this gave an opportunity for the collection of data regarding the natural course of the disease and the frequency of development of paralysis. There were 13 cases in which the clinical picture, the pleocytosis, in the spinal fluid, and the subsequent history of the case, justify the diagnosis of acute poliomyelitis in the preparalytic stage. Of these only 4 became definitely paralyzed while 9 did not develop any paralysis. Similarly, of 30 cases reported to Dr. Draper, 19 escaped paralysis. In all probability the incidence of paralysis in patients infected with poliomyelitis varies in different epidemics, at different periods in the same epidemic, and among different groups or ages at the same period of an epidemic. It is of interest in this connection to review some of the therapeutic results obtained by use of specific methods of treatment. The Harvard Commission, in 1916, treated 51 cases in the preparalytic stage by intravenous injections of serum of patients who had recovered from the disease, and 35, or 69 per cent, recovered without paralysis. Considering the fact that the evidence indicates that about 65 per cent of patients infected with poliomyelitis never develop paralysis if untreated, the results of this small series of cases cannot be regarded as carrying great weight. In a disease in which a favorable outcome is apparently more commonly the rule than the exception, it is extremely important to be critical of therapeutic measures.

M. M. BANOWITCH.

DANA, H. W.: **Myocardial Lesions in School Children.** *The Boston Medical and Surgical Journal*, August 25, 1921, clxxxv, No. 8, p. 228.

The conclusions drawn by the author are based upon the continuous observation of 171 public school children over a period of eight years, and upon the records of from six to ten cardiac examinations of each child, within separate school years, by other examiners or by the writer. The conclusions are:

(1) Proof of myocardial insufficiency is often to be found in supposedly healthy children. This may be evidenced in any one of the following ways: (*a*) in the production of a relative mitral regurgitation as the result of exercise; (*b*) in the movement of the apex beat outward or downward as the result of moderate exertion; (*c*) in the appearance of a gallop rhythm after exercise.

(2) Myocardial insufficiency of sudden onset is usually the result of an acute infection. Among infections affecting the heart, measles would seem to have an important place.

(3) After an acute illness a child should not be discharged by his physician until an "effort test" produces no evidence of myocardial decompensation. In public schools the school physician should make this test on each child who makes application to return from quarantine to the school.

(4) More than one examination is necessary to determine the fundamental condition of the heart.

(5) The routine cardiac examination of school children should be focussed, more than it now is, upon the condition of the myocardium.

(6) Proof of permanent myocardial damage may be furnished in a child (*a*) by a poor response to exercise on repeated examinations; this is to be interpreted in relation to the production of a murmur, of arrhythmia, of marked dyspnea, of gallop rhythm, rather than in regard to pulse rate; (*b*) by the presence of an enlarged heart, without murmurs; (*c*) by the presence of persistent tachycardia, for which no other cause, such as tuberculosis or hyperthyroidism, can be found; (*d*) by the persistence of a "functional" heart murmur for several years.

(7) In a child over ten years old, an apex beat more than 7 cm. from mid sternum, indicates enlargement of the heart. In smaller children, the normal apex beat should not be more than from 5.5 cm. to 6.5 cm. from the median line.

(8) Digitalis should be used only in those children who show signs of decompensation when the heart is under normal strain.

(9) In public school children the care of a damaged myocardium is best controlled through the supervision and the limitation of athletic work by the school physician and by the teachers.

(10) Children with compensated mitral regurgitation and giving a good response to effort, also children with compensated myo-

cardial defects and a good effort response, should be permitted to take part in gymnastics and the less tiring sports.

M. M. BANOWITCH.

MEYER, J., PILOT, I., AND PEARLMAN, S. J.: IV. **The Incidence of Pneumococci, Hemolytic Streptococci and Influenza Bacilli (Pfeiffer) in the Nasopharynx of Tonsillectomized and Nontonsillectomized Children.** *Journal of Infectious Diseases*, July, 1921, xxix, No. 1, p. 48.

Pneumococci, hemolytic streptococci and Bacilli influenzae were often found in the nasopharynx of normal children. The incidence and numbers of hemolytic streptococci and influenza bacilli in the nasopharynx is decidedly less in the children whose adenoids and tonsils had been removed. In case of the pneumococcus the numbers are less in the same children than in those whose tonsils were present. The removal of tonsils and adenoids reduces the number of certain bacteria in the oropharynx and nasopharynx, but does not cause their disappearance.

M. M. BANOWITCH.

SECTION ON
ROENTGENOLOGY AND ELECTRO-
THERAPEUTICS

WITHERBEE, W. D.: X-ray Treatment of Tonsils and Adenoids.
American Journal of Roentgenology, 1921, viii, 25-30.

Following the suggestion of Dr. J. B. Murphy (Murphy, J. B., Witherbee, W. D., Craig, S. L., Hussey, R. G., and Sturm, E.: The Atrophy of Hypertrophied Tonsils by Small Doses of X-ray. *J. Am. Med. A.*, Jan., 1921), the author treated the first case of hypertrophied tonsils in December, 1919 at the Rockefeller Institute for Medical Research. This case, although carefully examined, revealed no changes in the surface, size or outline of the tonsil, until the fifth week following treatment. The first evidence of the effect of x-ray was a smoothing out of the tonsillar mucous membrane, which very soon resulted in a glazed and somewhat pale surface. This was followed by a rather rapid decrease in size, which in this case was most apparent in the left tonsil. At the end of eight weeks the left tonsil was seemingly reduced one half and the right one-third. About this time a dose similar to the first was given. Since then and up to the present time this patient has had no further trouble and the tonsils are apparently now both about one-fourth the original size. When the effects of this case became conclusive, Dr. Craig and the author started a series of cases which numbered in all about 60 and ranged in age from sixteen months to fifty years. The amount of x-ray used in the experimental series of 60 cases varied from three to seven minutes time, depending upon the age of the patient, with an 8-inch spark gap, 5 milliamperes and 10 inches distance, filtered through 3 mm. of aluminum. This dose of filtered x-ray is less than the standard amount used for the past twenty years in the treatment of ringworm of the scalp in children, which fact overcomes the possible objection of any untoward effects on adjacent tissues from the standpoint both of amount, and of area of the head exposed.

Only two exposures are necessary in each treatment of tonsils, and the maximum dose used is $13\frac{1}{4}$ skin units (Witherbee and Remer. Filtered X-ray Dosage. *New York Med. Jour.*, June 26, 1920, cxi, No. 26) of filtered ray, which corresponds to less than 1 skin unit used in temporary epilation of the scalp in children. It is generally conceded by most writers on this subject that the increased size of the tonsil depends directly upon the increase of the lymphatic tissue. According to Kellert (The Pathological Histology of Tonsils Containing Hemolytic Streptococci. *J. Med. Research*, May, 1920, xli, No. 4, pp. 387-398), the hypertrophy of the follicles appears to cause distortion of the crypts, thus aiding in retention of the crypt contents. The effect of x-ray on lymphoid tissue in the diseased tonsil is exemplified by a drawing. The destructive action of x-ray on the cells of the lymph follicles of both the lymphoid and fibroid tonsil are also well outlined. The selective action of x-rays on embryonic tissue or its effect on the cell in certain phases of mitosis are the usual methods of describing x-ray effects on diseased cells as compared with normal cells. The destructive action of x-rays on the cells of these enlarged lymph follicles might also be explained on the ground of their having been stimulated to excessive proliferation to such an extent that there remains less resistance to the x-ray than in the normal cell. Therefore this difference in resistance would account for the small dose of x-ray necessary to destroy these pathogenic lymph follicles without interfering in any way with the normal adjacent cells. Thirty-two out of thirty-six cases showed negative cultures for pathogenic bacteria four weeks after one massive dose of x-ray. The younger patients are immobilized; on a structure shown the longest piece for the support of the body is 3 feet. The entire board is 4 feet long, 10 inches wide and 1 inch thick over all. The head piece is 1 foot by 10 inches and 1 inch thick with a bevelled opening $2\frac{1}{2}$ inches in diameter. This opening prevents undue pressure on the ear. The angle made by the union of the head piece with the body support gives the position necessary for the direct exposure of the adenoids and left tonsil but also includes the right tonsil and adenoids as the rays pass on through the opposite side of the head and neck. This position can be assumed by the adult patient with the proper placing of pillows or cushions. By maintaining the above position and placing the x-ray tube at the proper angle in both children and adults it is evident that each tonsil and adenoids receive two

doses of x-ray. The opening in the lead foil, should be not less than 3 inches by $2\frac{1}{2}$ inches for the average case. In this experimental series of 60 cases treated the following factors were used with 3 mm. of aluminum: 8-in. Sp. Gap, 5 MA, 10 in. D, and from 3 to 7 minutes time for each exposure depending upon the age of the patient. From the experience with these cases and subsequent treatment of other cases, fractional dosage seems to promise better and more uniform results than the single measure dose. It therefore seems advisable to give each at least four treatments as a minimum using the following factors every two week; 7-in. Sp. Gap, 5 MA, 10 in. D, and 3 min., 19 sec. time through 3 mm. of aluminum. These factors give 1 skin unit of filtered ray, which corresponds to $\frac{1}{2}$ skin unit unfiltered in effect on the skin. The same result may be obtained by producing 1 skin unit of filtered ray with a 6, 8, or 9-inch spark gap (Witherbee and Remer. Filtered and Unfiltered X-ray Dosage. *Am. J. Roentg.*, Oct., 1920, vii, 485), 5 MA, 10 in. D., with 3 mm. aluminum, or if necessary 1 mm. aluminum could be used instead of 3 mm. to save time, especially with the small (2 K W) interrupterless machines, where a 6-inch gap is maximum. The factors for one skin unit with 1 mm. of aluminum would be 6-in. Sp. Gap, 5 MA, 10 in. D, and 2 min., 41 sec. time. The next best method would be two or three massive doses given with four to six weeks intervals. Care must be used that the four factors are maintained throughout the exposure. The only contra-indications to the immediate use of x-ray are: recent radiographs of the region to be exposed; recent x-ray treatment; the external application of any liniment, ointment or lotion other than vaseline, lanolin or cold cream. It does not seem advisable to give x-ray treatment during the active stage of all acute infections or immediately after applying nitrate of silver, iodine or any local irritant to the tonsil. If given as described, the treatment has not the slightest danger of injuring the skin. The immediate and after-effects of excision of the tonsil seem severe as compared with the x-ray treatment, which may produce dryness of the throat and a feeling of stiffness in the muscles of the neck. These symptoms are only apparent to the sensitive individual when the massive dose is used. Dr. Thomas R. French (Retention Crypts in the Infratonsillar Nodules as Harbors of Pathogenic Bacteria. *New York Med. Jour.*, June 19, 1920, cxi, No. 25, pp. 1057-1065) has emphasized the presence of chronic infectious material in the crypts

of the infratonsillar nodule as a possible source of systemic infections and advocates their removal even though the operation is more extensive than that of tonsillectomy. If he is right, and the infratonsillar nodule with its pharyngeal and lingual branches exhibits the pathological and histological characteristics, it seems reasonable to infer that not only will patients treated with x-ray have their tonsils reduced and crypts evacuated, but that the same process will prevail in the infratonsillar nodule, thus more thoroughly removing the focal infection than by tonsillectomy and by this means better results will be obtained in combating those systemic infections dependent upon this condition. It would seem probable that x-ray treatment will be indicated in cases of diseased tonsils and infratonsillar lymph-nodes associated with chronic endocarditis, pericarditis, hemophilia, or any coëxisting conditions which contra-indicate operation or an anesthetic. One hopeful assistance is in the diagnostic value in determining the relationship between the focus and a given systemic infection, more especially those infections in which pain is a prominent symptom. If the bacteria are the causative factors of such pain, it would stand to reason that their evacuation would be followed by partial or complete relief. In such an event the most rational treatment could be definitely decided upon. Another hopeful assistance from the x-ray is to be considered in the possible evacuation of bacteria from the crypts of the tonsil in carriers, especially those of diphtheria and influenza. For it is hardly to be supposed that these bacteria would recur after such evacuation except by re-infection.

PENDERGRASS, E. P.: **A Study of Polycythemia Vera with Splenomegaly, with a Report of Two Cases, and a Discussion of the Treatment by the Roentgen Rays.** *The American Journal of the Medical Sciences*, May, 1921, clxi, No. 5, No. 590, p. 723.

The etiology of the disease is unknown. It is more frequent in men than in women, and between the ages of thirty-five and forty-five years. Duration is from eight to ten years. Death is the result of cerebral hemorrhage or some intercurrent disease. The symptoms are: cyanosis, general weakness, splenic enlargement, headache, constipation, and sometimes hemorrhage. The usual blood-picture

shows the red cells averaging about 8,000,000. In one case 14,180,000 R. B. C. were found. Normoblasts were occasionally found. Blood viscosity was increased 4 or 5 times more than normal. The leukocytes run parallel to the erythrocytes, with an increase in polymorphonuclears. Hemoglobin is markedly increased, not parallel to increase of red cells. Color index is less than 1. Specific gravity is 1050 to 1065. Iron, lecithin, and phosphoric acid contents of the blood are increased. Five cases have been reported with a myelocytosis. The spleen is always enlarged and filled with blood.

Treatment.—Applications of roentgen rays are made over the bones, excluding the head bones, if the case is thought to have its origin in the bone marrow. It is recommended that the maximum dose be distributed over three successive days rather than at one time. If splenic in origin the entire spleen is exposed and a stimulative dose given. Both bones and spleen are rayed in some instances. Cases are checked by blood study after three series of exposures.

A. T. MAYS.

NESSA, N. J.: **X-ray Diagnosis of Osteomyelitis.** *Journal of Radiology*, August, 1921, ii, No. 7, p. 34.

X-ray diagnosis of osteomyelitis cannot be made during the active stage, but only when the disease has become more or less chronic: in fact there are usually no definite radiographic findings during the first ten days; when an inflammatory process involves the bone marrow, cortex, and periosteum simultaneously, it is called osteomyelitis.

Bone changes in osteomyelitis are destructive as well as reproductive, at one and the same time. Therefore x-ray diagnosis is made by the variation present in these processes, inasmuch as bone reproduction does not take place before nature is getting mastery and destruction is present both during the acute and chronic stage.

Bone destruction leads out along the so-called Haversian canals and produces the formation of a sequestrum. The cortex may also be pierced: this is an important factor in the differential diagnosis of malignancy as in the latter, when of the destructive type, never is there found intermingling areas of normal bone and neither does the cortex destroy in part, but completely as a whole.

Chronic osteomyelitis manifests itself by a beginning bone repro-

duction at the edge of the infection, where new bone will follow as well on the bone shafts. This will give the appearance of bone expansion, but on close examination it will reveal itself as an external bone deposit. Sometimes the medullary cavity becomes obliterated through the same process, or a bone shaft becomes thickened and irregular in contour with areas of increased and decreased density throughout.

Conclusions.—In acute osteomyelitis there is bone destruction with but little bone reproduction, whereas in chronic cases the reverse is present. The x-ray plate in osteomyelitis is not a definite one, as it may show shadows of such changes as areas of destruction or bone necrosis, areas of bone reproduction, enlargement of bone with irregularity in outline, and the presence of sequestra and involucrum. X-ray study of osteomyelitis should always be associated with the patient's clinical history.

HERNAMAN-JOHNSON, F.: **A Case of Large Penetrating Ulcer of the Lesser Curvature.** *Archives of Radiology and Electrotherapy*, August, 1921, xxvi, 75.

The patient, aged 60, had had gastric pain and frequent hematemesis for six months. There was also a somewhat vague history of "painful indigestion" during the previous five years.

Examination by opaque meal showed the presence of a large cavity communicating with the lesser curvature, which was diagnosed as penetrating ulcer of the lesser curvature. The patient refused surgical exploration and was put to bed for three months on a milk diet, and rapidly improved.

Eighteen months later the patient returned at the instance of a recurrence of former trouble. A plate was made so as to be as nearly as possible a replica of the first plate. No trace of the ulcer cavity was evident. However, a plate from a decidedly different angle showed traces of opaque food in the region previously occupied by the ulcer, of course indicating the presence of an ulcer.

Conclusions.—(1) This is clinical and radiographic evidence that a large gastric ulcer can heal under medical treatment alone; and (2) it is absolutely necessary in x-ray examination to take plates from more than one angle.

WITHERBEE AND REMER: **X-ray Treatment of Acne Vulgaris.** *Medical Record*, 1921, xcix, 482.

The dose of x-ray necessary to produce effective results, if given properly, produces no ill effect, provided the treatment is not undertaken too soon after the use of such drugs as sulphur, resorein, bichlorid, beta naphthol, lotio alba, irritants or astringents. The application of any of these drugs during x-ray treatment is absolutely contra-indicated in acne as well as in any condition in which x-ray therapy is indicated. The reason for this is obvious. In order to produce uniform and permanent results it is necessary that the amount of x-ray used should be sufficient to diminish the size of the sebaceous follicles without affecting the skin and its appendages, whereas the combined effect of irritating drugs and x-ray will produce a radio-dermatitis with resultant atrophy, wrinkling of the skin and later telangiectasia. This permanent deformity may not make its appearance until six or eight months after treatment. Recurrences seldom, if ever, take place, provided dietary regime and rational constitutional measures are maintained after a full course of x-ray treatment.

BLAINE, E. S.: **An X-ray Burn of Third Degree Followed by Rapid Healing.** *American Journal of Roentgenology*, 1921, viii, 183-186.

The patient was being treated for a blastomycotic skin lesion, which was of ten years' duration. This had gradually spread in anterior and posterior directions, reaching the posterior limit of the median groove, between the nates but not spreading over the buttocks; its greatest spread occurred anteriorly from the point of origin over the entire scrotum, over the shaft of the penis, the glans, and it then invaded the skin over the lower abdomen by way of both inguinal folds, spreading about equally on both sides of the body to the flanks at the regions over the iliac crests. A formula of 5 milliamperes of current, a 5-inch spark-gap resistance (60,000 volts), at a 7-inch target to skin distance, for five minutes, with 2 milliammeters of aluminum filter, was given. By a mistake one area was given double dosage. This resulted in a complete breakdown of tissue in this area and in eleven days the entire abdominal wall, for a space 3 inches in diameter, the skin, subcutaneous and muscle tissues had

disappeared down to the peritoneum. The coils of the intestine could be seen through this thin veil. The patient was kept very quiet and a sterile dressing kept in place over the eroded area, binding it firmly over the hole in the belly wall. No medication of any kind was given and plans were made for a later surgical repair. In fifteen days the broken down tissue had increased but very slightly in extent. In thirty-nine days no definite evidence of the accident was visible. There was no real scar and but little puckering or drawing in the healed-over spot. After three years no untoward sequelæ have occurred and the patient is working. It has been suggested that the area involved was no longer true skin tissue, having been changed by the fungus invasion, and that therefore it responded in a different way from that in which the normal skin responds.

STEVENS, J. T.: **The Management of Toxic Goiter with Radiation.**
New York Medical Journal, Feb. 5, 1921, cxiii, No. 6, p. 245.

This article is limited to treatment of toxic goiters as its title indicates with especial emphasis upon radiation. To be quite accurate there are cases which fall naturally into treatment by any one of the three methods, medically, surgically or by radiation, though there are cases quite numerous which can be properly treated by combined medical and surgical, or medical and radiation treatment. Selection of cases for either method is carefully considered by both internist and surgeon, and likewise the internist is to be sought in coöperation by radiographer and surgeon. The dangers are that the medical treatment may be continued too long; operations are done on the wrong class of patients, either at the height of the toxic symptoms or too late; the radiographer may employ hit-or-miss methods, or the technician may try to treat cystic and other types without any success. Surgery alone often has its failures, from return with hypertrophy and hyperfunction. These are now being treated by radiation with success, and stay cured. The author asks why not radiate all of the cases other than the purely medical types before operation is advised, and especially appropriate are those cases which are too ill for operation. Under careful thorough radiation at least 90 per cent of these patients can be cured. Another advantage is that treatment can be nicely regulated. In cases which are nearly

normal under radiation the treatment can be suspended at just the right time. Of course by continuing treatment we may produce hypothyroidism. Also in 90 per cent of the cases the thymus gland is also enlarged. The roentgen ray will show the state of that gland, and radiation may then be performed upon both thyroid and thymus. Radiation may be employed in one or two forms or the two forms combined, *i. e.*, roentgen ray or radium. The action of either is the same. He employs the roentgen rays because of the smaller fee, and because the rays from a Coolidge tube backing the equivalent of 90,000 volts, filtered through 6 mm. of filter are not greatly different from the gamma rays of radium. Radium is easier to apply, with easier technic, and produces effect with less shock to patient. The writer does all work in coöperation with an internist as after beginning radiation there may be an increase of toxic symptoms for a week or ten days. This stage is then soon followed by complete or marked relief from the toxic symptoms. "It is not uncommon for a goiter the size of a grape fruit to reach the size of a robin's egg in from four to five series of treatments, the patient in the meanwhile enjoying perfect health."

The technic is described as follows:—usually four fields or areas for treatment are sufficient, cross firing on the diseased area from each. The machine is set as indicated above to the equivalent of 90,000 volts, 6 mm. of filter, focal distance 10 inches, administered to each port of entry about seventy-five milliamperes minutes according to machine used. Repeat at monthly intervals. As patient improves in weight, pulse becoming more normal, and nervous symptoms lessen, the interval should be lengthened.

BOGGS, R. H.: The Treatment of Tuberculous Adenitis by Roentgen Rays and Radium. *The American Journal of the Medical Sciences*, July, 1921, clxii, Part 1, No. 592, p. 90.

The author claims that roentgen rays and radium will cure more cases of tuberculous adenitis than any other method. Radiotherapy alone will cure 90 per cent of these cases. Surgical treatment is always contraindicated primarily in every case. Those who do radical operation will find the responsibility harder to shoulder with the ever increasing recognition of the fact that tuberculous adenitis

can be cured without it. Hard, fibrous nodules following radiotherapy seldom ever contain any tuberculous foci, but it may be advisable to remove these nodules through a small incision. Large cervical glands may be due to sarcoma, Hodgkins disease, leukemia, etc., but radiotherapy is still the best form of treatment, although the end results are not the same as when the enlargement is due to tuberculosis. Boggs believes that eventually this method of treatment will be universally accepted as a satisfactory plan to combat tuberculous adenitis.

A. T. MAYS.

WOLF, L. K., AND DEELMAN, H. T.: **Case of Melanosarcoma Conjunctivae Bulbi.** *British Journal of Ophthalmology*, January, 1921, i, No. 1, p. 4.

A patient, 37 years old, brunette with dark hair, brown eyes and many small moles had a pin-sized melanosarcoma of the conjunctivae bulbi. She had always been healthy. A superficial strip of pigment surrounded the tumor. The tumor vessels were tortuous and swollen. The tumor with a wide strip of conjunctivae was removed, and x-rays used.

The anatomical examination showed a granular piece of tissue which is irregularly colored black and brown. Microscopically it seems to be covered on three sides with pavement epithelium. Under the epithelium there is a tumor tissue which reaches the surface in several places. At these points the epithelium has become very thin. In the deeper parts the structure is alveolar. The nuclei are often spindle-shaped. The pigment is mainly found as granules of varying size lying in the stroma of the connective tissue between the formed cell alveoli. Irregularly outlined dark colored cells are to be seen in small blood- or lymph-vessels. The vascular wall had evidently been broken through.

The roentgen treatment consisted of 16 H units, filtration 5 mm. aluminium. One year and a half later the eye was removed, because a new melanotic strife had formed.

This type of melanosarcoma is rare. It arises from a pigment spot, growth is to the outside, relapses are frequent, and metastasis is slow.

SIMPSON, B. T.: **Pathology and Etiology of Cancer.** *Journal of Radiology*, August, 1921, ii, No. 7, p. 37.

ETIOLOGY.—The most outstanding factors in the causation of malignant disease may be grouped under four heads:

- (1) Infections.
- (2) Mechanical injury.
- (3) Thermic conditions.
- (4) Chemical influences.

It is erroneous to say that the cause of cancer is not known. So many and varied influences may stimulate a susceptible cell or group of cells to abnormal proliferation, that any of these various influences may cause the biological change in the same cell at different times. We can never hope to find a single specific cause for the entire group of malignant neoplasms. However, certain causes are more or less fixed, as carcinoma of liver and pancreas (cirrhosis), cancer of gall-bladder (cholelithiasis), epithelioma of scrotum (chimney sweeps) or following x-ray dermatitis (x-ray burns), cancer of the bladder in anilin workers (chemical influence), etc.

However, certain "precancerous lesions" must be observed as, if allowed to continue, they will almost always produce carcinoma. They follow:

(1) Those potentially malignant, as in Paget's disease, and papilloma of the urinary bladder.

(2) Those conditions which undergo malignant change, examples of which are papillar serous cysts of the ovary, papilloma of the larynx, chronic cystic mastitis, unhealed leukoplakia, and hydatid mole.

(3) Those lesions which are occasionally followed by malignancy, as papillar naevus, benign adenomata of the thyroid and breast, and adenomatous polyps of the intestine.

AGE.—Even though the majority of epithelial cancer occurs past forty, it may occur at any age. Cancer of the stomach, cervix, intestines and also other organs is frequently met with in the early decades of life. Also the earlier cancer occurs, the more malignant it is.

SEX.—From all indications sex brings little influence to bear, except that which is due to anatomical structure and environment.

CLASSIFICATION.—Confusion in classification often arises from lack of distinction, between histological and clinical viewpoints.

Histological Classification.—Histologically, epithelial new growths may be classified under three main divisions:

(1) *Epithelioma.*—The epitheliomata which take their origin from epithelium of the skin or non-glandular mucous membranes are distinctive from glandular epithelial neoplasms. They may be divided:

(a) Pearl or prickle cell epithelioma springing from the skin.

(b) Basal cell epithelioma springing from the epithelium of the hair follicles, or glands of the skin.

(c) Mucous membrane epithelioma, which arises from the mucous membranes covered with stratified squamous epithelium, as in the cervix, mouth, vagina, esophagus, etc.

(2) *Adeno-carcinoma.*—This is a histological type, springing from glandular structures, and characterized by cells, aping, more or less, the structure of the glands from which they spring. These usually include duct and papillar adeno-carcinoma.

(3) *Medullary or solid carcinoma.*—This is a term given to those tumors which histologically show solid masses of growing epithelial cells. Tumor cells which tend to irritate the normal structure are probably more slowly growing cells, and are therefore less malignant.

CLINICAL TYPES.—(1) Papillar or fungoid carcinoma, characterized by papillary outgrowth on surfaces (generally mucous membrane epitheliomata). They generally yield well to surgery.

(2) Infiltrating carcinoma, a tumor growth with a tendency to grow into the surrounding tissues (usually medullary or solid carcinoma with early metastasis).

(3) Ulcerating carcinoma, which is often but a later stage of the papillar or infiltrating, but may have originated in an ulcer (early metastasis).

(4) Medullary carcinoma, the term applied to the very cellular soft varieties (early metastasis).

(5) Scirrhus carcinoma, a term used where the tumor is extremely hard (characterized by excessive amount connective tissue stroma). It is usually seen in older people.

(6) Gelatinous or colloid carcinoma, in which there is a great tendency to the production of mucin which gives a jelly-like appearance to the cancer. This has little tendency to metastasis, but has marked invasive characteristics.

Metastasis.—In epithelial malignant growths metastasis occurs

usually through the lymph-channels into the regional lymph-nodes. Occasionally tumor cells penetrate the vessel walls and metastasis occurs by blood stream. The size of the primary tumor, or the duration of the disease does not determine metastasis, for apparently early tumors of the breast frequently show extensive metastases in the axilla, while on the other hand large tumors of long standing show only hyperplasia of the lymph-nodes. In experimental cancer metastases occur when there is loss of immunity. Also metastases can be artificially produced by rough handling of the animals, or massage of the tumors. The presence of metastases is of grave prognostic import.

MURPHY, J. B., HUSSEY, R. D., WITHERBEE, W. D., CRAIG, S. L., AND STURM, E.: **Effect of Small Doses of X-rays on Hypertrophied Tonsils and Other Lymphoid Structures of the Nasopharynx.** *Journal of Experimental Medicine*, June, 1921, xxxiii, No. 6, p. 815.

Animal experiments had shown that it is possible to induce any degree of atrophy of lymphoid tissue without damaging other tissues. Since small doses of x-rays, well within the safety limit, can induce extensive reduction of lymphoid tissue, there is no reason why it should not be used as a therapeutic agent in a variety of conditions.

A study was made of the effects of small doses of x-ray upon the tonsil and other lymphoid deposits of the nasopharynx. The patients treated were placed upon a table and the head tilted so that the rays might pass under the angle of the jaw to the region of the tonsil. About a three-inch square was left exposed, and the surrounding area covered with heavy sheet lead. The dose used is from one to one and three-quarters skin units, given as follows: 8-inch spark-gap, 5 milliamperes, 10 inches distance from the target to the highest point of skin exposed; the time varies between 3 and 7 minutes, depending upon the age of the individual, and the x-rays were filtered through 3 mm. of aluminum.

Where excessive adenoid tissue was present a third exposure was made at the back of the neck just below the posterior occipital region with the head tilted forward.

Forty-six individuals ranging in age from three and a half to forty-five years were observed for one month or longer after treat-

ment. Cultures were taken from the throats of 40 of these individuals before and at intervals after treatment. The material for culture was obtained from the crypts of the tonsils with a platinum loop and was plated on blood agar.

In all but 4 of the 46 cases treated there resulted marked atrophy of the tonsils and other lymphoid tissues, attended by an opening and drainage of the tonsillar crypts. As this process progressed the previously enlarged tonsils assumed a smooth and normal appearance and the hemolytic bacteria—streptococci and staphylococci chiefly—which were often present in the affected tonsil disappeared usually within four weeks of the treatment.

H. M. FEINBLATT.

SECTION ON NEUROLOGY AND PSYCHIATRY

BONNER, C. A.: **Paresis Treatment by Arsphenamin and Mercury.**
The Boston Medical and Surgical Journal, July 14, 1921, clxxxv,
No. 2, p. 60.

The author compares a series of cases treated with arsphenamin and mercury with a series of untreated cases. Twenty-eight cases diagnosed as paresis received weekly injections of arsphenamin, and mercury inunctions. Each case also received, for one month, potassium iodid in a dosage of 30 grains (1.95 grams) per day. In the purely parietic type the Wassermann reactions were very little influenced. Only one improved in the cases allowed to go home as far as the serology was concerned. Two spinal fluids (as interpreted from the gold sol reading) were reduced, and one had a negative gold sol reaction. The average duration of life in the treated patients who died in the hospital was five months and four months for the untreated cases. The remissions in the treated cases were longer sustained than in the untreated. Eight of the treated patients were discharged and only 2 of the untreated. At the expiration of the two-year period 27 of 42 untreated had died and 8 of the treated. As a result of his study the author concludes: (1) The course of duration of the bed-ridden stage seems lessened by treatment, and dying patients in this stage do not linger so long in the usual wretched state; (2) serology bears no relation to remissions; (3) duration of ward life seems lengthened; (4) the results are found to be favorable to treatment, but do not warrant a change in prognosis; and (5) certain cases respond but others do not. No explanation is offered, unless it may be that the meningeal types, as have been reported, offer a better therapeutic opportunity.

M. M. BANOWITCH.

HAMMER, A. W.: **The Thyroid Gland and Thyrotoxicosis.** *New York Medical Journal*, February 5, 1921, cxiii, No. 6, p. 245.

Passing over the historical features of this article we find the matter falls into two parts:

(1) Myxedema from loss of thyroid secretion has following symptoms: dryness and scaling of skin with pigmentation; depression of circulation, *i. e.*, small slow pulse, subnormal temperature, cardiac dyspnea on exerting, tendency to fainting, lassitude, melancholia, muscular rigidity, epileptic convulsions, urinary changes, lessened output of quantity, also of urea and nitrogen, and low in specific gravity; marked decrease in red cells of the blood, also of hemoglobin to even greater decrease, the viscosity of blood increased, and finally interference in bodily growth.

(2) Conditions resulting from retention or too rapid absorption of toxins which permeate the substance of the gland, in which class toxic goiter may be classified: it is found most commonly in period between twentieth and fortieth year; the thyroid may show marked enlargement. Palpation demonstrates an expansive pulsation, less elastic upon deep palpation, a blowing murmur to the stethoscope. The more abrupt the onset the more marked are the symptoms. The pulse is frequent, and of high tension, congestions are usual, nose-bleed is not an uncommon symptom. Nervous symptoms are marked; mental and bodily unrest, tremors and insomnia, sweating of palms and axilla; falling of hair of head and eyebrows, and fading of its color. Skin becomes waxy, translucent, the nails and teeth brittle. Reddening of and pigmentation of skin are common. Later fatigue is marked, and emaciation. The blood-picture is important and from it alone may be made a diagnosis; the normal leukocytes are somewhat decreased, the neutrophils, ordinarily most numerous, are markedly decreased even less in number than the lymphocytes, which are often increased in number to twice the normal, and a decrease of the eosinophils. The red cells are about normal in number, the hemoglobin as well, but the coagulation of the blood is retarded.

The treatment varies in proportion to the acuteness or chronicity of onset.

In very acute cases the course is rapidly fatal, from the overwhelming of the heart by the virulent toxins. Placing the patient in most favorable sanitary surroundings, ample rest, tonics and heart

sedatives, therapeutic use of electricity or roentgen ray, use of serum from thyroidectomized animals are asserted with good results. The injection method with iodine, or derivatives such as iodoform is good. It should be remembered that goiter occurring at puberty may later disappear. Any nonmalignant tumor, which is rapidly increasing in size should be operated upon.

The experience of the author favors the use of local anesthesia with novocain (one-half to one per cent); ether or chloroform increase the bleeding, and are condemned.

HOLTEN, C.: The Symptoms and Course of Tuberculous Meningitis in Adult Consumptives. *Tubercle*. January, 1921, ii, No. 4, p. 150.

The scanty literature on the subject, the evident lack of unanimity of the observers, led the writer to classify his material according to age and the presence or absence of phthisis:

- (1) Tubercular meningitis in children (well-known).
- (2) Tuberculous meningitis in adults.
 - (a) With more or less extensive pulmonary tuberculosis.
 - (b) With previous good health.

The cases he analyzes are from the tuberculosis department of the Oresunds Hospital. There were found in the years between 1910 and 1919 inclusive, 30 cases of tuberculous meningitis in persons over sixteen years of age. For his analysis he takes but 14 cases in which the diagnosis was confirmed by postmortem examination. Twelve of these cases were in the third stage and the two remaining were in the second stage. One-half the cases were between 30 and 40 years of age. One case was over fifty years; 3 cases were between sixteen and twenty; 2 between twenty and thirty, and 1 over forty.

He particularizes 3 cases, which he says are typical:

- (1) Woman, age 45, in third stage of pulmonary tuberculosis; fever with hemoptysis; improved under treatment for four months; complained then of violent, fluctuating headache, generalized in character. Nothing relieved this pain which persisted for 5 days, and then slightly improved. On the seventh day the pain localized into the frontal area, and was accompanied by vomiting. Pulse was 84. The headache persisted for several days, with no other signs or symptoms, neither slowing pulse nor cervical rigidity nor Kernig's sign.

The abdominal examination was negative. Nausea and vomiting gradually diminished up to the twelfth day. The thirteenth day she became drowsy and in the afternoon lapsed into partial unconsciousness. The only other signs were squint, increased reflexes, Babinski's sign, and incontinence of urine. There was no reaction to light, no nausea, no cervical rigidity, or dermatographia, and Kernig's sign was only just positive. Death occurred on the fifteenth day.

Summary.—There was no grouping of symptoms into three defined stages. Headache was intermittent instead of steady; cervical rigidity absent throughout, though supposed to be a cardinal symptom; and finally it lasted but fifteen days though most authors place its duration from three to six weeks.

(2) Youth, age 17, in third stage when admitted. Temperature normal; he improved greatly the first month. Then he began to lose weight and sweat profusely. Two months later he began to complain of slight headache with loss of appetite; following several days he showed drowsiness, groaning, and complaining a little. The first week perfectly conscious, no cervical rigidity, Kernig's sign absent, only meningitis sign was vomiting, especially when he sat up in bed. The drowsiness persisted and in ninth day Kernig's sign was demonstrable, with slight rigidity and intermittent tendency to squint. On the tenth day he became unconscious and died two days later. The symptoms were ill-defined and after the onset of symptoms he survived but three days.

(3) Woman, age 33, admitted in third stage of pulmonary tuberculosis. Suffered even then with slight headache, which grew worse the next few days, improving under migrain. On sixth day the headache disappeared, but now vomiting after meals began, and on the eighth day the headache returned, and drowsiness supervened. The pulse was 88. No other signs of meningitis. Consciousness was gradually lost, but still no signs of meningitis until the ninth day, when respiration became Cheyne-Stokes type. On tenth day albuminuria developed, and on the eleventh day death occurred. Herein, a case failing to show a single cardinal sign of meningitis, necropsy showed typical tuberculous meningitis with large serous effusions in the ventricles of the brain; the prominent symptom was drowsiness and the duration was eleven days.

The remaining cases closely resembled the above three. Convulsions were never seen, and motor aphasia did not occur, nor was

hemiplegia ever seen. Conscious until near the end; in a few cases partial loss of consciousness was the first symptom. In some cases retention of urine and feces was noticed, but several cases were normal in this respect till death. Two cardinal symptoms, cervical rigidity and Kernig's sign, were not invariably present. Headache was the most common symptom, but in several cases the headache was not persistent but intermittent. Vomiting was a common symptom, but the dominant one after the disease is well developed in drowsiness.

It is necessary to differentiate from the symptoms of a profound toxemia, which could be determined by a lumbar puncture. The author illustrated by use of one case of a girl of 18, admitted with history of 4 or 5 months' illness. She showed high fever, much exhaustion, in the third stage. The right pupil was larger than the left and the liver was distended to one finger-breadth below the costal arch. The seventh day delirium and drowsiness began, but no headache or cervical rigidity. The reflexes were normal, temperature fluctuating between 38° and 39° C. (100.4° and 102.2° F.); pulse 120. Legs were drawn up and the muscles were firmly contracted. Necropsy showed no sign of meningitis.

(a) There is a definite difference in the clinical picture of tuberculous meningitis in children and adult consumptives.

(b) The extent and distribution of the disease appear to have little effect in determining the severity of the symptoms.

(c) Some cases of toxemia in the terminal stage of pulmonary tuberculosis may simulate clinically tuberculous meningitis, only differentiated by a lumbar puncture.

MORQUIO, L.: **Acute Meningitis and Tuberculous Meningitis.** *Journal of Nervous and Mental Diseases*, 1921, liii, 1-7.

The author has followed more than 100 clinical histories of meningitis, 80 of which were tuberculous. Most of the cases have followed gripe or have appeared a short time after it, gripe having been the cause only occasionally. Other illnesses have also awakened meningeal conditions, because of special pathogenous agents. Reference is here made to "Meningitis cerebro espinal y meningitis tuberculosa" (*Rev. Med. del Uruguay*, Dec. 1919), and to "Consideraciones

generales sobre meningitis aguda" (*Arch. Latino Americanos de Pediatría*, Jan., 1920). Tuberculous meningitis may be superacute, acute or subacute. One of the patients died in 48 hours; four lived a week, but these were exceptional cases. In general the evolution is subacute, insidious, cold and progressive, with alterations, ending in death in three or four weeks. It may appear in children of all ages; the youngest of the patients was four months old, the oldest fifteen years. Special symptoms correspond to special ages; for instance, in the breast-fed infants there is rapid evolution with convulsions or coma; they sleep through their illness. The grown-up child and adolescent has more irritative or spasmodic contractures, and the convulsive symptoms, delirium, etc.; in second infancy we find the classic form of this illness with all its well-known features. Tuberculous meningitis may be primary or secondary. The primary form appears in a patient who up to that time has been in apparently perfect health, though we must accept as proved the fact that the biological reactions would have been positive had they been investigated. Several of the patients had been perfectly well and the observer is much surprised when coming into contact with a patient who is a strong child without antecedents and without previous illness. Tuberculous meningitis can appear at any age. Sometimes the children are delicate and fragile, although not really ill or considered to be suffering from tuberculosis. There are also cases of children who, although they do not show symptoms of tuberculosis, have lived in infected surroundings. The secondary form can follow a tuberculous process, lung, peritoneum, joint, etc., in its classical features as a final spread of granules. We can also consider as secondary the meningitis that follows other infectious conditions, such as gripe, measles, whooping-cough, typhoid fever (among the most prominent). Two cases which the author considers as atypical forms of tuberculous meningitis began with spinal symptoms of paraplegia. In one this was the initial symptom; in the other, it occurred two months before the meningeal symptoms. There is a group of illness that clinically and cytologically can be mistaken for tuberculous meningitis, and for which the conventional name of pseudo-tuberculous has been selected. This pseudotuberculous meningitis may be primary or secondary. The differential diagnosis between tuberculous meningitis and pseudotuberculous meningitis is a very interesting one, in the first place in so far as it may indicate

a specific and perhaps favorable treatment in some cases, and secondly, in so far as it may be the basis of an altogether different prognosis. The pseudotuberculous forms are curable in general, the tuberculous incurable; one cannot reckon with the rare cases of cure in tuberculous meningitis. The author's mortality was 100 per cent.

SIMMONS, R. R.: **Epidemiological Role of a Case of Cerebrospinal Meningitis.** *American Journal Public Health*, 1921, xi, 452.

In some hospitals the patient with symptoms of meningitis is removed with his contacts from the ward to isolation. The contacts are swabbed and carriers are segregated for treatment. This cares for positive cases and carriers but not for non-carrier contacts. As the incubation time for meningitis is not known, contacts cannot be retained and released at a definite time. If, however, evidence should indicate that the case of meningitis had not contaminated others, all negative contacts might be dismissed after a few days. If the common assumption that infection in meningitis is conveyed by secretion from the nose and mouth the disease would be most infectious during the prodromal stage. A study was made of post-nasal swabbings from 48 persons in one ward of a military hospital who were suffering from mild influenza. One case of epidemic meningitis developed, and after isolation bacteriological cultures were made. Besides the case of meningitis one carrier was detected and 9 persons developed meningitis later. One case developed on the day of the culturing, one the following day, five in two days, one in three days after the swabbing, and the rest 12 days later. It appears that the nasopharynx does not harbor the organisms, at least not in large numbers, during the period immediately preceding the onset of the disease. The organisms are found in immense numbers in the nasopharynx of the carriers. Contacts of a sporadic case rarely develop the disease. Fildes and Baker had 485 proven carriers under observation for a considerable time and no case developed. Flack (*Brit. Med. Research Comm.*, Spec. Report, Series 3, p. 59) reports 4 cases in a group of 185 carriers. Fildes and Baker in 1917 (*Lancet*, 1917, ii, p. 602) reported 26 cases which they swabbed at varying intervals prior to the onset of the disease. They could in

none develop positive cultures. It seems probable that the organisms are either not present in the nasopharynx prior to the onset of the disease or that they are present in numbers insufficient to prove a source of danger to the contacts.

The author arrives at the conclusion that meningococci are received into the nasopharynx in very small numbers in cases in which the disease develops. They must rapidly pass into the meninges or the circulation. Carriers and not cases furnish the source of infection in most instances. It seems unlikely that the meningococci are present in the nasopharynx of premeningococcus cases in numbers sufficiently large to prove a menace to those associated with them, even when other infections of the upper respiratory tract are present.

GORDON, A.: *Conjugal Syphilis of the Nervous System. American Journal of Syphilis*, 1921, v, No. 2, p. 248.

Acker and Ziehen, in 1887, placed the first authentic observation concerning conjugal paresis on record, of two couples dying from paretic cachexia. In 1888 Mendel found tabes occurring in consorts of paretics. At the Paris neurological Society, in 1900, Souques discussed conjugal tabes, and Babinski said, that he looks for tabetic symptoms in the spouse of every married tabetic presenting him- or herself for treatment. Dupré, Dejerine, and Gilles de la Tourette agreed with him.

It is not necessarily tabes or paresis that will develop, but "formes frustes" or some, often slight, symptom. Children living with paretic or tabetic parents or brothers and sisters may develop the same diseases. The author collected the records of 32 such patients. Not only tabes and paresis in the classical form were present but other forms of nervous manifestations referable to brain or spinal cord or to both. In the majority of cases the date of appearance of the first symptoms of tabes or paresis in the second parent was much later than the cerebrospinal symptoms of nontabetic or nonparetic character in the same parent. Seventeen to five years after marriage have been seen to pass before the contamination from the first tabetic or paretic appeared in the second parent. These symptoms appeared many years after the beginning of conjugal life, where the wife had been first to become diseased. In cases of a second marriage or

where the marriage relations after separation from the first wife were maintained, the appearance of syphilitic manifestations was earlier in the second wives than in the first ones.

In one case the wife of a taboparetic of 38, after living with him for five years, married a presumably healthy man. Eight years later both showed tabetic symptoms. Another married woman entered into illegitimate sexual relations with a man with a positive Wassermann test, who at the age of 51 developed paresis. After 5 years both she and her husband developed symptoms of cerebrospinal syphilis and a positive Wassermann reaction was found in the spinal fluid of the latter. Another woman whose husband had had a chancre one year before his marriage and who showed tabes one year after the death of her husband had continued intercourse with another man for five years. This man then showed symptoms of cerebral syphilis and a positive Wassermann of the serum. The husband eight years later presented evidences of tabes with a positive Wassermann of the spinal fluid.

Nervous syphilis may be transmitted to individuals, not only to those leading an intimate conjugal life, but also to those who live constantly together in the same dwelling, such as relatives who may come in close contact with one another for years. A man, who at forty showed symptoms of paresis, and whose two mistresses had, one symptoms of tabes, the other of cerebral syphilis, had a sister, 22 years old, living with him who showed symptoms of cerebral syphilis and a positive Wassermann of the spinal fluid. The parents had been well, and left five healthy children. A young man, 23 years old, who had had no sexual intercourse developed symptoms of cerebral syphilis and a positive Wassermann reaction of the spinal fluid. His father, a physician, a year after the son was born had entered into illegitimate sexual relation with a woman with a positive Wassermann reaction of the spinal fluid. In these members of the family, who were not married or sexually related, the Wassermann in this investigation, was positive only in the spinal fluid. The author therefore advises the spinal fluid test, and thinks the blood test can in many cases be avoided. These 32 cases of conjugal syphilis have been collected in 8 years. The author considers Edinger's exhaustive view in studying the question, *i. e.*, why the infected wife does not always take on the same form of cerebrospinal syphilis as the man. Is it that in one the spinal axis, in another the cerebral

portion of the system is more easily fatigued, and that in one tabes, in the other paresis will develop? Or is it a case of *locus minoris resistentiæ*?

Any form of nervous syphilis may be found in the consort of a tabetic or paretic patient.

SEMERAK, C. B.: **Changes in the Human Central Nervous System in Botulism.** *The Journal of Infectious Diseases*, August, 1921. xxix. No. 2, p. 190.

The author reports the study of a brain-stem examined in several sections from a case of botulism in a girl 17 years old. The changes found were entirely confined to the vascular system. Thrombosis in arteries and veins is the initial change followed by ischemic necrosis and later by inflammation. The poison has no direct action on the nerve-cells; the retrogressive changes are secondary and due to the disturbed blood supply. The ganglion cells of origin of the motor cranial nerves are always involved because their blood supply is derived from terminals of branches of the vertebral arteries which seem to be the seat of predilection of the thrombosis.

M. M. BANOWITCH.

PEABODY, F. W., STURGIS, C. C., TOMPKINS, E. M., AND WEARN, J. T.: **Epinephrin Hypersensitiveness and Its Relation to Hyperthyroidism.** *The American Journal of the Medical Sciences*, April, 1921, clxi. No. 4, No. 589, p. 508.

Studies were made of different groups of individuals both normal and abnormal and they were shown to react with different degrees of intensity to the injection of epinephrin. The fundamental nature of the reaction is unknown. It is associated with a rise in heat production which runs more or less parallel to the intensity of the reaction. On the basis of what is definitely understood with regard to the physiologic action of epinephrin it seems probable that the phenomenon is due to a stimulation of the sympathetic nervous system. Theoretically a positive reaction might indicate hyperactivity of the thyroid gland, of the adrenal glands, or of the sympathetic nervous

system. It might, on the other hand, depend upon a lowered threshold of response of the sympathetic nervous system. Little is known of these conditions except of hyperthyroidism. It is reasonable to think that other glandular reactions might occur in a positive reaction associated with hyperthyroidism. It is much more likely that different causes account for the reaction in different types of clinical cases. Hypersensitiveness to epinephrin is not constant in many patients having a clinical picture of hyperthyroidism and with an increased basal metabolism. It is found in normal individuals, that is, those without indications of hyperthyroidism. A group of 28 Harvard medical students were tested, and 4, or 14 per cent were positive; but a group of well-trained, hardened soldiers were tested and none out of 26 were positive. Forty-eight per cent of "effort syndrome" cases were positive. Seventeen patients with organic heart disease were tested, and 3, or 11 per cent were positive. Twenty-one patients convalescing from acute infections were tested and 5, or 19 per cent, gave positive reactions. A heart case gave a negative reaction, after which, a few days later, tonsillitis developed. During convalescence a test was made which was positive, giving evidence suggesting hypersensitiveness of the sympathetic nervous system during infections.

The positive reaction to epinephrin seems to occur most often in the highly nervous individuals, but it is not constant. The writers claim that no specific significance should be attached to the diagnosis of hyperthyroidism by this test.

A. T. MAYS.

BLUMER, G.: **Report of a Case of Extensive Cavernous Angioma of the Head, Face and Neck, with Attacks of Fever and Somnolence.** *The Boston Medical and Surgical Journal*, July, 14, 1921, clxxxv. No. 2, p. 58.

The author reports the case of a man aged 49 whose family and past history were negative. A nævus of the forehead just external to the angle of the right eye was noted at his birth, and this gradually increased in size. This caused him no inconvenience until, at 30, three groups of symptoms appeared, probably related to each other. For the past 15 to 18 years the patient has had attacks of headache

occurring once or twice a month, very intense, bilateral, occipital, and without nausea. Going without food tends to bring them on. Food relieves him somewhat and after a few hours sleep he feels quite well. For five years he has had attacks of drowsiness not associated with the headaches. A day or two preceding these attacks he is tired and constipated. He is light headed and his gait becomes unsteady although there is no true vertigo or tendency to fall in any particular direction. He feels sleepy, "dopy", and sleep is irresistible. There is no ocular or auditory manifestation; speech and memory are not affected. Three recent attacks have been associated with rise in temperature as high as 103° F. (39.44° C.), preceded by chill and intractable hiccoughs. During the past 3 months the patient's fellow workers have noticed three sudden attacks of complete unconsciousness, coming on suddenly and lasting from 15 to 20 minutes.

Physical examination shows a well-developed male of good color; rapid pulse, regular and of good volume. Blood-pressure is 104/56. On both sides of the neck, anteriorly, more marked on the right side, is a deep cavernous plexus of veins which collapses easily.

These vessels are about 12 or 14 mm. in diameter. In several of them, hard rounded bodies, non-sensitive, and as much as one centimeter in diameter, can be felt. On the right side the angiomatous mass becomes very superficial in the region just behind the outer angle of the eye where it forms a bluish mass, 5 to 6 centimeters in diameter when distended. In this region the superior orbital ridge is defective and the outer tables of the skull appear to be absent. The angiomatous mass involves not only both sides of the neck and the right temporal region but also the ocular conjunctiva on the right side, the cheeks, the hard and soft palate, the right half of the tongue and the pharyngeal wall as far down as can be seen. There is no bruit over the skull in the region of the mass. The general physical examination of the internal viscera is negative except for a slight enlargement of the heart. Neurological examination is negative. During an attack the patient was quite pale, hiccoughing, breath foul, tongue heavily coated. Mental process was slower than normal. Lumbar puncture yielded a clear fluid under pressure, 15 cells to the cubic millimeter. The Pandy and Ross-Jones reactions were positive. Wassermann and colloidal gold reactions were negative. An x-ray of the skull revealed general thickening of the tables with the

vascular depressions somewhat more marked than normal. The left frontal sinus was absent, and there was destruction of bone in the right supraorbital region. Numerous areas of increased density in the zone occupied by the angioma were present; these were regarded as phleboliths. Laboratory examinations were negative. During two febrile attacks, cultures of blood aspirated from the angioma were negative.

The interest in this case lies in the interpretation of the paroxysmal attacks. A review of the literature fails to find a similar case. The author concludes that, in spite of the lack of more definite signs, this is an instance of the association of an external angioma of the cranium and face with an independent internal angioma involving the pia mater.

M. M. BANOWITCH.

LEVINSON, A., LANDENBERGER, L. L., AND HOWELL, K. M.: **Cholesterol in Cerebrospinal Fluid.** *The American Journal of the Medical Sciences*, April, 1921, clxi, No. 4, No. 589, p. 561.

One hundred and sixty-eight fluids were examined for cholesterol. Its diagnostic usefulness is limited because of its presence in brain hemorrhage, some cases of meningitis, and occasionally in general paresis. If the history indicates hemorrhage of the brain, large amounts of cholesterol aid diagnosis. Normal cerebrospinal fluid contains no cholesterol or only a very faint trace. Fluid in which the Wassermann and Lange reactions are positive contains no cholesterol in appreciable amounts. Only three out of twenty-five such fluids gave a reading in the colorimeter. Fluid from brain tumor shows only a trace of cholesterol. Brain abscess fluid gives a high cholesterol reading. The majority of meningitis fluids show a trace of cholesterol; three fluids had a high reading. Ventricular fluid gave no cholesterol reading, except when there was the presence of hemorrhage of the brain or other pathologic condition. The Hauptmann reaction seems to depend upon the cholesterol content of the cerebrospinal fluid. This work does not confirm Pighini's contention that the Wassermann reaction depends upon the cholesterol of the fluid. The cholesterol content depends wholly or partially upon the permeability of the meninges.

A. T. MAYS.

LEWIS, K. M., KING, G., AND DINEGAR, R.: **Epidemic Encephalitis: Observations on a Series of Five Cases; Autopsy Findings; Predominating Symptomatology; Relation to Influenza; Personal Conclusions.** *The American Journal of the Medical Sciences*, June, 1921, clxi, No. 6, p. 831.

The theory of the etiological factor of epidemic encephalitis, that it is a filterable virus, is wholly speculative. The majority of cases have a preceding history of influenza. The predominating symptoms and signs are malaise, sleeplessness, diplopia, masked face, normal temperature, pulse and respiration in ratio. The most important laboratory study is that of the spinal fluid. It is not under pressure and is always clear. Cell-count varies from 7 cells to 81 per cubic millimeter and are nearly all mononuclear. Globulin was 1 plus in every examination of this series. The colloidal gold curve was variable but in the presence of a negative spinal fluid Wassermann, a tabetic or parietic gold curve, in a patient with clinical symptoms of encephalitis, should be of significance in diagnosis. Smears were all negative and cultures all sterile. The pathology is characterized by perivascular infiltration of round cells in the nuclei of the bulb. The mortality is low; the majority recover.

A. T. Mays.

NIXON, C. E., AND SWEETSER, T. H.: **A Report of an Epidemic with Certain Cases Presenting the Picture of Meningo-encephalitis.** *The American Journal of the Medical Sciences*, June, 1921, clxi, No. 6, p. 845.

Eleven cases are reported divided into three groups according to the symptomatology. The first group presented the syndrome of an acute toxic condition; the second group that of a meningitis or meningo-encephalitis; and the third group the clinical and pathological findings of epidemic encephalitis. In these cases there was a definite diminution of acuteness in the latter cases, and there was an evident contagiousness present in the whole group of cases. The acuteness of the disease and the mortality of the epidemic were unusual. The mortality was 54.5 per cent. Three of the 6 fatal cases resulted in death within forty-eight hours: 1 after 5 days; and

1 after 41 days. Epidemic encephalitis has hitherto been considered generally as a less acute disease with a fairly low mortality.

A. T. MAYS.

ROGOFF, J. M., AND GOLDBLATT, H.: **Attempt to Detect Thyroid Secretion in Blood Obtained from the Glands of Individuals with Exophthalmic Goiter and Other Conditions Involving the Thyroid.** *Journal of Pharmacology and Experimental Therapeutics*, xvii, No. 6, p. 445.

Blood was obtained from thyroid glands of ten individuals upon whom thyroidectomy was performed for exophthalmic goiter, three for thyroid adenoma, and two colloid goiter, and tested for the presence of thyroid secretion, utilizing the tadpole reaction. No evidence was obtained, in any of the specimens, of the presence of active thyroid material in blood.

C. A. SCHMID.

MENNINGER, K. A.: **Influenza and Epilepsy: Further Studies upon the Relation of Mental Disease and Influenza.** *The American Journal of the Medical Sciences*, June, 1921, clxi, No. 6, No. 591, p. 884.

The conclusions are summarized from the literature and clinical material afforded by the epidemic of 1918 and 1919. The effect of influenza upon idiopathic epilepsy is not uniform. Beneficial influence is occasionally secured; seizures are usually absent during fever and sometimes occur with decreased frequency after the acute infection. No cases are recorded of entire cessation of epileptic attacks. Deleterious influence is more frequently observed. Seizures may occur with increased frequency after influenza. The character of the seizures may change subsequent to an attack of influenza. Epilepsies, whose manifestations have long been latent, may be incited to renewed activity by influenza. Psychoses may be precipitated in epileptics by influenza, as in non-epileptics. Syndromes which resemble typical idiopathic epilepsy, except that recovery usually occurs shortly, are occasionally evoked by influenza. The majority

of epileptics who had influenza did not exhibit any alteration in their disease. There was usually lowered resistance and therefore abnormally high morbidity and mortality rates as compared with normal patients.

A. T. MAYS.

INTERNATIONAL MEDICAL DIGEST

Vol. II

DECEMBER, 1921

No. 12

CONTENTS

	PAGE
Editorial Abstract Board - - - - -	1058
Section on General Medicine - - - - -	1059-1104
Section on Laboratory and Research - - -	1105-1124
Section on Pediatrics - - - - -	1125-1136
Roentgenology and Electrotherapeutics - - -	1137-1144
Neurology and Psychiatry - - - - -	1145-1152
Analytical Table of Contents - - - - -	i-iii
Index of Authors - - - - -	iv-xxxiv
Index of Subjects - - - - -	xxxiv-xcviii

W. F. PRIOR COMPANY, INC. - PUBLISHERS

HAGERSTOWN, MARYLAND

Published Monthly

\$3.00 Annually

Copyright, 1921, by W. F. Prior Company Inc.,

Departments

GENERAL MEDICINE

LABORATORY AND RESEARCH

PEDIATRICS

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

NEUROLOGY AND PSYCHIATRY

Editorial Abstract Board

ARISTIDES AGRAMONTE
CHARLES M. ANDERSON
H. B. ANDERSON
A. F. R. ANDRESEN
MAX M. BANOWITCH
SAMUEL POTTER BARTLEY
CHARLES C. BASS
R. H. BENNETT
E. BATES BLOCK
NATHAN E. BRILL
C. H. BUNTING
ARTHUR F. BYFIELD
JORGE CAMPUZANO
SIMON CHISS
ROBERT A. COOKE
H. B. CUSHING
J. B. D'ALBORA
JOHN STAIGE DAVIS
WILBURT C. DAVISON
HERBERT K. DETWEILER
GOODWIN A. DISTLER
W. H. DONNELLY
LOWELL B. ECKERSON
CHARLES A. ELLIOTT
CHARLES P. EMERSON
WILLIAM ENGELBACH
JOSEPH S. EVANS
HENRY M. FEINBLATT
JOHN FERGUSON
MARTIN H. FISCHER
HUGO A. FREUND
DAVID GEIRINGER
THURMAN B. GIVAN
S. PHILIP GOODHART
ALFRED GORDON
M. B. GORDON
CHARLES LYMAN GREENE
JULIUS GRINKER
BENJAMIN GRUSKIN
SEALE HARRIS
H. H. HOPPE
TASKER HOWARD
EDWARD L. HUNT
LOUIS F. JERMAIN
STEPHEN P. JEWETT
HENRY JOACHIM
LOUIS C. JOHNSON
DAVID J. KALISKI

HARTWIG KANDT
ALEXANDER LAMBERT
CARL HENRY LAWS
DE FOREST LAYTON
VICTOR D. LESPINASSE
WILLIAM LINTZ
THOMAS LONGO
GEORGE LORDI
ALEXIS T. MAYS
J. B. McELROY
F. A. MANDLEBAUM
EDWARD E. MAYER
PLINN F. MORSE
HERMAN O. MOSENTHAL
CHARLES F. NICHOLS
ALFRED T. OSGOOD
ROBERT C. PATERSON
MAX MINOR PEET
HARRY PLOTZ
CHARLES S. POTTS
THOMAS F. REILLY
C. W. G. ROHRER
JULIAN ROSE
JACOB ROSENBLUM
F. F. RUSSELL
J. W. SCHERESCHEWSKY
CORNELIUS SCHMID
FREDERICK SCHROEDER
SIDNEY K. SIMON
FRANK SMITHIES
ROBERT SOUTTER
ISRAEL STRAUSS
RICHARD L. SUTTON
N. A. THOMPSON
FREDERICK TICE
JOHN L. TIERNEY
ROBERT G. TORREY
BEVERLY R. TUCKER
J. R. VALINOTI
EDWARD B. VEDDER
LOUIS M. WARFIELD
LUTHER F. WARREN
BERTRAM H. WATERS
WALTER F. WATTON
EUGENE R. WHITMORE
HENRY WOLFER
SIDNEY YANKAUER

INTERNATIONAL MEDICAL DIGEST

Vol. II

DECEMBER, 1921

No. 12

SECTION ON GENERAL MEDICINE

EDITORIAL: The Search for a Specific Treatment of Tuberculosis. The Spahlinger Treatment. *British Medical Journal*, February 26, 1921, No. 3139, p. 307.

The editor comments on the note of Prof. Letulle, of April, 23, 1914, in his communication to the Académie de Médecine. The method is described as a specific treatment of pulmonary tuberculosis originated by Henry Spahlinger, a Swiss bacteriologist, who combined a series of intramuscular injections of tuberculous antigens and ferments with an "auxiliary" treatment composed of ferments associated with lipoids, which latter were either injected intramuscularly or intravenously. This treatment was tried out at the City of London Hospital for diseases of the chest, to what extent he does not know. He recently received from Dr. A. H. Croucher, a translation of a note of M. d'Arsonval deposited with Académie des Sciences in Paris. M. d'Arsonval states that the material used consisted of antigens and ferments obtained from the tubercle bacilli—the antigens are separately inoculated in increasing doses, according to a fixed scale, so that at the end of several months an injection of all the components of the bacillary bodies is made. Treatment of this method has been carried on from 1915 to present time in Switzerland, France and England. Dr. Croucher reports: "All cases known to me treated six years ago were still alive and capable of carrying on their daily occupations at the end of 1920". All the patients were suffering from advanced tuberculosis and two had laryngeal complications. Dr. Croucher also included a note from Dr. Leonard Williams that

certain cases of advanced tuberculosis with bacilli in sputum treated thus from 1912 to 1914 had remained well during the last six years, although they had received no specific treatment since 1914. Examination in 1920 showed their condition was good, no trace of active tuberculosis, no cough, and no expectoration.

The editor further says that until M. Spahlinger and his friends have made a full statement as to the way in which the material is prepared, and have allowed competent bacteriologists to observe their methods it will necessarily have to be ignored officially. He quoted Dr. Addison of Exeter: "It is most important, having in view the fact that widely published statement may raise unfounded hopes in the hearts of consumptives, that it should be stated as clearly as possible that in the case of this supposed remedy much further investigation will be necessary".

It is not evident from the reports so far as to just what is the real nature of Spahlinger's remedy. He quotes a letter from Dr. W. Camac Wilkinson, entire, which is herewith abstracted:

He (W. Camac Wilkinson) assumes that this treatment is in the nature of a tuberculin in which he himself has been working with since 1896, though it is possible that M. Spahlinger has a modified process of using a modified form of the product. He heartily approved of the direct method as he has abundant evidence himself, even in the advanced cases and in ulceration of larynx, as he can show in many times the number of cases in the last twenty years, and firmly believes it to be the method of the future. But trial must fulfill certain conditions, which he had previously published in 1912.

(1) The remedy should be the only remedy used in treatment.

(2) The remedy should be exploited in a consecutive series of cases of all kinds (not merely specially selected cases), and all the cases fully treated should be published.

(3) After treatment the cases should be carefully watched and examined at least three or four years before a final judgment is given upon the value of the remedy.

(4) The results should be arranged in three groups, or better, as in his own records, in five groups, according to character and degree of the changes in the lungs.

His own observations have been carried out in the main under these conditions, and should furnish trustworthy evidence of the value of the method.

RAWLS, R. M.: **The Status of Intrauterine Stem Pessary Based on a Study of 205 Cases with End Results in 117 Cases.** *American Journal of Obstetrics and Gynecology*, February, 1921, 1, No. 5, p. 499.

The intrauterine stem pessary has been used for over a century, but up to the present time its status is still undetermined. From Oct. 1, 1915, to Sept. 20, 1919, there were treated in the Woman's Hospital 9,003 patients on whom were performed 15,823 operations. During this period 205 intrauterine stem pessaries were inserted which gives for this operation 2.3 per cent of the patients under treatment and 1.3 per cent of the operations performed. For this period 309 patients had either dysmenorrhea, amenorrhea, sterility, antelexion of the uterus, congenital malformation of the uterus, or stenosis of the cervix. In such conditions the stem is more often indicated in this series; it was used in 51.7 per cent of the cases. The indications for employing the stem were dysmenorrhea in 107 or 52.2 per cent, sterility in 47 or 22.9 per cent, dysmenorrhea and sterility in 23 or 11.2 per cent. Insertion of the stem alone was done in 147 cases, combined with minor operations in 13 cases and combined with major operations in 45 cases. Preliminary to insertion of the stem divulsion and curettage, with sharp curette, were used 173 times, divulsion and curettage, with dull curette, 11 times and divulsion alone 21 times. The curettings were examined microscopically in only 48 cases. With records in 186 cases which show hard rubber or Davenport stem was used in 102 or 54.8 per cent, glass stem in 80, or 43 per cent, the straight or Baldwin in 40, and the curved or Ward in 40, and the "Wylie drain" in 4 or 2.2 per cent. In 124 cases the stem remained in situ in 16 under one month, in 36 from one to two months, in 24 from two to three months, in 15 from three to four months, in 3 from four to five months.

CASE I.—Exacerbation of a chronic salpingitis, Mrs. N., thirty-five, married 5 years, never pregnant, complained of pain and swelling of lower abdomen. Patient observed for 15 days and temperature was never higher than 99° F. (37.22° C.). Under anesthesia a divulsion and curettage and insertion was done. Three days later there was a foul vaginal discharge and the pessary was removed and douches ordered. Up to this time the temperature was 99° F., but the evening of the fifth day the temperature rose to 102.8° F. (39.33° C.) and she complained of intense abdominal pain accompanied by

persistent nausea and vomiting. Temperature did not return to normal until 14th day after operation. She was seen and examined three months afterward and the cervix was eroded and there was a mucopurulent vaginal discharge.

Comment.—The divulsion, curettage and insertion of the stem caused the acute exacerbation of a chronic tubal condition but the blame should be charged to the operator rather than the operation.

CASE II.—Suspected salpingo-oöphoritis. Positive Wassermann and chronic endocervicitis. Mrs. C., twenty-eight, never pregnant, complained of drawing pain in right lower quadrant, sacral backache and vaginal discharge of ten years' standing. Patient was subjected to a divulsion, curettage and insertion of a stem (straight glass). "On account of an infected cervical discharge, the cervix was curetted and an application of tincture of iodine made before the stem was introduced. In six the temperature only rose to 101.2° F. (38.44° C.) and in another twenty-four hours it was normal and so remained. She was seen four months later and no comment made except that the uterus was anteфлекed.

Comment.—If grave morbidity had followed, it should be charged to the operation, for there were contraindications to any intracervical or intrauterine operation.

CASE III.—Postoperative pyelitis or cystitis. Mrs. P., twenty-five, never pregnant, subnormal temperature. Divulsion, curettage and insertion of curved glass stem held in place by two points suspension suture of silver wire secured by shot but stem cut out while patient was still in the hospital. After five days the temperature rose to 102° F. (38.89° C.) and did not return to normal until after the ninth day.

If we combine the end results for private and ward cases we find in 72 cases of dysmenorrhea there was improvement in 77.8 per cent with relief in 61.1 per cent and in the 47 cases of sterility there was relief in 23.4 per cent. If in addition we include the 8 cases in which the stem was used for symptoms other than dysmenorrhea or sterility but in whom an anteфлекion of the uterus or a stenosis of the cervix seemed to contribute to the symptom complex, then there was improvement in 55.9 per cent with relief in 45.7 per cent. In a paper read before the N. Y. Obstetrical Society the author presented the available statistics of the operative results for dysmenorrhea and sterility. To these, others were added and a review gives for operations other than insertion of stem a relief of dysmenorrhea in from

(1) because of the alarming symptoms excited by the stone, (2) because the stone does not progress and cannot progress by manipulation, (3) because the stone is more than 0.5 cm. in diameter or perhaps these reasons might be summarized by the statement that the shape of a ureteral stone determines its fate. Six months appears to be the accepted limit for awaiting the passage of stone after a renal colic. Those cases which have gone beyond without gravely impairing renal function, 9 to 12 months, 5 cases, 12 to 18 months, 3 cases, and 18 to 26 months, 6 cases.

Two cases are given, one illustrating frequent difficulty in diagnosing ureteral stone, the other the possibility of a neoplasm being undiagnosed. The great variety of conditions from stone in both kidneys to stone in the one kidney the patient possesses, presents the common problem of the influence of disease or absence of the opposite kidney upon the treatment of renal and ureteral stone. Bilateral surgical renal disease may exhibit various degrees of unilateral or bilateral renal deficiency, but its most interesting phase is that in which the patient complains of unilateral symptoms and examination reveals grave deficient renal function due to large or multiple stone in the opposite kidney. Under such conditions the following rules for operation are doubtless generally acceptable.

(1) The kidney showing the better function should be operated upon first.

(2) The kidney showing acute symptoms is usually the sounder organ.

(3) Impaction of stone in the ureter of the sounder kidney may temporarily reduce its function below that of its fellow. Under such conditions it is safer to operate first upon the side with ureteral stone.

(4) Simultaneous bilateral operation may be attempted if the patient's condition is relatively good and the first operation not unduly bad (thirty minutes).

(5) In an emergency, such as anuria, the sole object of operation should be to provide drainage to the kidney, usually by pyelotomy (which in case of anuria should always be bilateral). Such stones as cannot be rapidly reached and readily removed should be dealt with at subsequent operation.

(6) Geraghty's formula, *i. e.*, good concentration of urea and of phenolsulphonephthalein and a small quantity of urine (with consequent low total phthalein), may be depended upon to indicate an atrophied or congenitally small kidney inadequate to support life.

Four cases are reported to illustrate the extremes in silent stone. Stone in a single kidney not only may but must be operated, unless there is some other contra-indication to operation. A case is reported of operation on a man with one kidney. One may well admit the many difficulties that surround the complete cure of the infection so often associated with renal and ureteral stone. *Bacillus coli* is not likely to occasion a relapse of the stone. But the cocci do occasion relapse even in kidneys that are seemingly draining well. Fortunately the cocci are particularly vulnerable to antiseptics by hexamethylenamin. The author treats renal infections associated with stone as follows:

- (1) In operating, maul and tear the kidney as little as possible.
- (2) Assure drainage by dilating ureter strictures widely and if it seems wise, by fixing the kidney high in the loin.
- (3) Symptoms suggesting renal retention occurring while the loin fistula is still open call for immediate irrigation of the kidney pelvis through the ureter catheter.
- (4) During convalescence, hexamethylenamin and bladder irrigation as a routine.
- (5) The source of infection may be in the tonsils, teeth, bowel, etc., and an effort should be made to get rid of it.
- (6) The prostate should not be forgotten.
- (7) Use the wax bulb as a routine to detect the presence of stone or stricture of the ureter even when one does not expect to encounter them.

A classification of the author's eighty operations for stone in the kidney pelvis and ureter is given.

BARTLETT, E. I.: **Clinically Doubtful Breast Tumors: Their Diagnosis and Treatment.** *Annals of Surgery*, June, 1921, lxxiii, 740:

There are three groups of physicians who have dealt with tumors of the breast. One has taken no chances and removed by complete operation all tumors that are frankly cancer or doubtful clinically. These surgeons have not failed to cure the early cancers, but they have been compelled to do complete operations where afterstudies showed that a local operation would have sufficed. Not a few patients, however, are willing to take their chances rather than suffer mutilation.

A second group is more interested in immediate results and avoidance of mutilation. These men prefer not to make a complete operation where cancer has not been clinically proven. They remove the breast alone or simply enucleate the tumor. On laboratory report of carcinoma, he then operates radically. They save the breast, but fail to produce a permanent cure in practically every case of cancer which is clinically doubtful.

A third group prefers to wait till the symptomatology is unmistakable. They apply salves or escharotics, etc. They never obtain permanent results in cancer cases.

The breast with all the primary lymph-vessels and lymph-glands which drain the breast, must be removed. Incision through the skin and the subcutaneous tissues should not divide any of the lymph-vessels on their way from the breast to the primary lymph-nodes. A two stage operation is wrong. Diagnosis must be made before operation.

Pain in itself means nothing. Very frequently, however, a benign tumor is painful and usually the pain with malignant tumors is a late development. A lump that is painful and tender only at periods has been found to be invariably benign and usually of an adenomatous parenchymatous type. If the mass is cancer and painful there are usually other signs, which lead the diagnostician. Early pain, while not an absolute sign of benignancy, might be taken as all but positive evidence against cancer in the absence of any signs of malignancy. Of 108 cases 38 were benign; 70 malignant skin changes were seen twice in benign, 39 times in malignant cases; nipple changes in one benign, and in 31 malignant cases; pain in 22 benign cases, in 35 malignant; 7 benign and 61 malignant cases were multiple; glands were involved in 9 benign and 45 malignant cases.

It is generally understood that benign tumors are encapsulated, while malignant are not. Clinically that cannot be determined, but there are variations of definiteness of the growth limits. The benign tumor may be bosselated, but it gives the sensation as if it were covered by a capsule, because the adjacent tissue is usually loosely adherent. A benign tumor of the fibro-epithelial type is seldom buried entirely in the breast tissue. It has the tendency to grow away from the lobulus at times with a rather narrow base of attachment. Malignant tumors and the various types of abnormal involution (chronic cystic mastitis, senile parenchymatous hypertrophy) nearly every time are buried in or involve the body or substance of the lob-

ulus. Involvement of a quadrant of the breast, that is, the involvement of all of one, or of more than one lobulus invariably means abnormal involution and not cancer. This is not a positive point, however, because cancer may develop in the midst of and be obscured by an abnormal involutinal process.

Cancer at the onset is nearly always single, while benign tumors are often multiple from the beginning. Multiplicity is never a positive sign of benignancy, but in case of doubt it may be considered.

The chance of malignancy in any tumor of the breast, regardless of the clinical signs, in a woman under 25 years is very remote. Bloodgood had one case in 885 malignant tumors. Age, therefore may be taken as a positive factor when the patient is under 25 and when the clinical picture favors benignancy.

Congenital retraction of one or of both nipples or acquired bilateral retraction is of no special diagnostic significance. Unilateral acquired retraction should be considered a diagnostic of malignancy if associated with a tumor mass. But severe injury to the breast with a deeply buried scar will sometimes result in nipple retraction due possibly to the contracture of the scar.

In skin or fat changes, no benign condition ever causes true atrophy of fat with shortening of the trabiculae or any of the other more advanced skin or subcutaneous changes such as dimpling or edema. "Therefore any dimpling, edema or discoloration associated with a tumor should mean malignancy."

If the condition in the glands is malignant, the tumor in the breast is invariably either cancer or extremely doubtful, and the diagnosis is arrived at without taking into consideration the glands. Enlargement of the glands is quite a constant finding in abnormal involutions. Cancer gland involvement is one of the late signs, while in inflammatory conditions or abnormal involution the glandular enlargements follow close on the appearance of the breast lesion. A positive clinical diagnosis can be arrived at only in cases where there are skin changes or in cases of acquired unilateral retraction of the nipple, or in cases of a lump in the breast of women under twenty-five. The pathological studies must be made before the patient leaves the operating table.

The three methods of surgical proceedings are, enucleation of the breast, gland, excision of the tumor with a narrow zone of breast tissue, and exploratory cutting down onto or into the tumor before removal. Bloodgood and the author advocate the last. Make a radical

•

incision directly upon the tumor, carbolize the whole tumor, as soon as the necessary piece is taken for laboratory diagnosis. Dissemination is avoided and immediately complete coagulation results. The nipple forms the center of incision. Hemorrhage must be carefully controlled to avoid discoloration. The lymph must be firmly held while the incision is made. As the tumor is approached the condition of the aureolar and breast tissue is noted. If a bluish tumor is seen, the diagnosis of cyst is made. It is considered benignant. The cyst is cut through and through the lobulus, because a cyst often signifies abnormal involution, and there may be other changes in the breast, about the cyst. If so lateral incisions are made.

If the tumor is not bluish, encapsulation must be noted. A capsule surrounding the tumor means that the surrounding connective tissue is not adherent to the tumor. The aureolar tissue or the breast tissue is divided over the tumor under tension, the cut edges retract and the tumor suddenly pops into view. This is in marked contrast to cancer, where there is no capsule, and the growth is infiltrated, and the immediate surrounding tissue firmly adheres.

LE MONACHO, D.: **Injections of Saccharose.** *Medical Press and Circular*, London, 1921, cxi, 353-355.

The author's personal research and that of his students have firmly established the fact that subcutaneous saccharine injections exercise two quite distinct actions on the secretory processes; in small doses they increase the quantity eliminated; in large doses they have the effect of decreasing or even arresting them. In studying the mechanism of the duplex phenomena, it is seen that the sugars exercise two distinct actions: one on the glandular epithelium, and the other on the blood-vessels. The latter is the more important, and the first may indeed be merely a consequence of its establishment. The mammary secretion responds very effectively to the influence of subcutaneous injections of saccharose. Hemorrhages both superficial and deep have been found to cease completely when a compress soaked in a 50 per cent solution of sugar is applied to the field of operation. It has been successfully used after extirpation of the prostate gland by the vesical route, after extirpation of a tumor of the cones medullaries, after splenectomy, during operations on the brain and in the

treatment of uterine hemorrhages. In the Physiological Institute, Rome, it is always employed in experimental operations on animals. Its action in cases of hemophysis is prompt and effective, even in those in which all the other known hemostatics had been tried and found unavailing. Another valuable example of its efficiency is found in its application to wounds. Injections of saccharose reduce the amount of expectoration in the tuberculous and have a corresponding influence on the nocturnal sweats and other characteristic symptoms. The treatment is one of an indirect influence. It is probable that the wound of the pulmonary substance evolves towards a condition of complete cicatrization. The injection of sugar promotes absorption of the septic products which are formed in the lungs, and if these do not meet with a sufficient proportion of anti-bodies they provoke the genesis of fever, or increase it when already existent. The saccharose injections are, of course, quite void of danger, as the toxic dose of the sugar is from 10 to 15 grains (0.65 to .972 gram) per kilogram (2.71 lbs.) of body weight. The fact should also be emphasized that the treatment has no contra-indication, which, of course, constitutes an enormous advantage. It is useless to have recourse to it in too dilute solution, or in too small doses. It may indeed be mischievous under such conditions, for the amount of expectoration would tend to increase instead of diminish; while the resulting vascular dilation would produce aggravation of other symptoms. The remedy when correctly administered really acts on the symptoms and not on the bacillus of Koch.

ZUCKERKANDL, O.: **Tuberculosis of Epididymis and its Operative Treatment** (Ueber die Tuberkulose des Nebenhodens und ihre operative Behandlung). *Medizinische Klinik*, January, 1921, xvii, No. 5, p. 124.

The epididymis is prone to hematogenous infection, and often tubercular primary tuberculosis is seen affecting it. The course is usually slow, but in some cases it appears suddenly with severe local irritation. The site of disease may be the tip or the caudal end of the organs. The foci are globular, tough and have a tense capsule. Even at this stage the nodule in the interior shows caseous degeneration. Latter on the capsule bursts and pus is evacuated through the

skin of the scrotum. The tuberculous process proceeds along the ductus deferens and may involve the testicle. Rays of caseous degeneration invade it. Along the spermatic cord tubercle bacilli are constantly transmitted to the urethra. In every case of epididymal tuberculosis tubercle bacilli are demonstrable by animal inoculation, even where there is no tubercular involvement of the urinary tract.

Tubercular epididymitis must clinically always be considered serious, even if local symptoms are absent. There is always danger of the other side becoming involved. Burns' statistics have proven in favor of radical treatment. As severe conditions are the consequence of prostatectomy, it ought not to be made without subsequent testicle implantations. In bilateral involvement a conservative operation seems the only possible therapy. Only diseased tissue will be removed. The testicle may be split, and diseased tissue taken away. This is advisable in advanced cases. In the beginning extirpation of the epididymis, the author starts his operation from the vas deferens, not from the epididymis. Eisendraht has proceeded in this same manner. The purpose is to take out the epididymis from the top end endeavoring to keep the blood-vessels intact. Only arteria deferentialis is cut. Novocain anesthesia into the spermatic cord, and infiltration anesthesia for the skin incision are used.

A longitudinal incision is made into the neck of the scrotum. The spermatic cord and the testicle are bared, the ductus deferens is ligated in two places, and cut, and the peripheral stump dissected downward. After opening the tunica testis, the serosa is split between testicle and epididymis, which must be separated, near the epididymis. The entire testicle is then entirely removed, keeping close to the capsule. Hemorrhage must be meticulously controlled. It is necessary to guard against infection by abscess, tubercular infection and infiltration. For this purpose the author has ligated the stump, and let it end in the skin.

RUCKER, M. P.: **Potter Version. The Elimination of the Second Stage of Labor.** *American Journal of Obstetrics and Gynecology*, 1921, 1, 574.

This paper describes the method used. In Potter's two papers, there were 700 cases reported with no maternal mortality or morbid-

ity. There were no more lacerations than ordinarily encountered. In the 200 cases of the second paper there were eighteen stillbirths. The conclusions drawn by the author after a large number of cases are: (1) The Potter version can be taught to students. It is easier to teach than the use of forceps. (2) It protects the maternal soft parts against undue injuries. (3) In the interest of the child, it should be done gently and deliberately. (4) A competent anesthetist is of prime importance, especially in those cases in which the membranes have ruptured early.

ATHERTON, L.: **Ergot in Typhoid.** *Journal of Oklahoma State Medical Association*, February, 1921, xiv, No. 2, p. 33.

There are no specific drugs to be used in typhoid. In all cases it will run a special course. In typhoid fever the nervous system gives rise to certain symptoms complex, *viz.*, headache, vertigo, restlessness, insomnia, muscular twitchings and delirium, the latter of which may be manifested by mild or severe delusions to the extent of causing the patient to leave his bed, be noisy, or he may be somnolent, soliloquizing in a low whisper, or so-called typhomania, which may gradually give place to coma, about the close of the second week.

All these symptoms can be controlled to a great extent by the administration of ergot. The author gives one dram (3.9 gram) doses every four or five hours for adults and the size of dose in proportion for children. In delirium the colon is flushed with normal salt solution after which one to two drams of the fluid extract of ergot may be given in combination with six to eight ounces of warm black coffee, instilled, per rectum. In other cases ergotol may be given hypodermically, but not with a gratifying result. There is danger from its administration in gastro-intestinal irritability, depression of the cardio-vascular and respiratory system, gangrene and in pregnant women, colic, abortion and hemorrhage.

SARGENT, J. C.: **Chronic Cystitis.** *Wisconsin Medical Journal*, 1921, xix, 456-459.

The author considers that cystitis should be viewed much more frequently as a symptom of renal tuberculosis, pyelitis and the like

rather than a separate disease entity. The symptom complex known as cystitis, consists usually of frequent and painful urination, with the presence of pus, blood and bacteria in the urine. In some instances the bladder discomfort is very marked, and the urinary findings very slight. In others the reverse occurs. Occasionally the occurrence of gross blood in the urine is the only evidence of a cystitis. There are nine distinct groups of chronic cystitis.

Group I, simple chronic cystitis, which is seldom really seen though frequently diagnosed. It occurs in both the male and female, more often in the female and is always very mild. It is very difficult to infect a normal bladder with any of the common bacteria except the gonococcus. Seldom does the frequency necessitate arising more than once or twice at night and seldom does the urine contain more than a few pus cells.

Group II is chronic cystitis due to chronic urethritis. Moderately frequent and painful urination with a few pus cells in the urine is occasionally seen in the male associated with a chronic posterior urethritis. The cause of the cystitis may be suspected by the history of a preceding gonorrhea and the diagnosis is made easy by endoscopic examination of the posterior urethra. It is more prevalent in women, often the result of a gonorrhea but not always. The pathology is usually confined to the urethra.

Group III, chronic cystitis from urinary obstruction. Residual urine sooner or later becomes infected. Stricture of the urethra or prostatic hypertrophy or cancer prevents the bladder from completely emptying itself and a cystitis results. The associated symptoms of difficult urination with a small weak urinary stream are sufficient to enable anyone to recognize this class. In this group might also come the cystitis resulting from infection of residual urine in a paralyzed bladder.

Group IV, chronic cystitis with a foreign body. This type is not very frequent. In the female a stone is usually formed around a foreign body; in the male a stone is formed in the residual urine. The frequency and burning are almost distracting. The urine is very cloudy and often visibly bloody. A smear shows numerous mixed bacteria. The diagnosis is usually made with the x-ray and cystoscope.

Group V, chronic cystitis with tumor of the bladder. Cystitis if present, is mild and the urine is clear except when the tumor is bleeding. When malignant degeneration occurs the symptoms become

worse. There is annoying frequency and burning associated with pus and bacteria in the urine. Blood becomes a constant finding. A cystoscope should be used.

Group VI, chronic cystitis with renal or urethral stone. Stone in the kidney or ureter is usually associated with more or less bladder irritability. Blood in the urine is a very variable finding in stone of the upper urinary tract. The diagnosis is usually made with the x-ray, which is not entirely dependable. Error is best eliminated by careful urine analysis and complete urological examination, supplemented by radiography.

Group VII, chronic cystitis with pyelitis, pyelonephritis and pyelonephrosis. These last three are always associated with cystitis, the severity of which depends upon the severity and acuteness of the renal infection. The diagnosis can be accomplished only by cystoscopy and catheterization of the ureters. The type of pathology may be recognized by divided renal function tests and pyelography. The cocci seem to have a predilection for the parenchyma of the kidney while the bacilli of the colon group have a predilection for the mucous membrane of the renal pelvis.

Group VIII, chronic cystitis with urogenital tuberculosis. Chronic tubercular cystitis in the female is, of course, only associated with renal tuberculosis, while in the male it may be associated either with renal or epididymal tuberculosis. The irritability of the bladder is usually marked. Frequency and burning is very marked. The ordinary cocci and bacilli are absent unless a secondary infection has been superimposed upon the tubercular infection.

Group IX, rare forms of chronic cystitis secondary to other pathology. In connection with this class may be mentioned such unusual lesions as Hunner's ulcer, diverticulum of the bladder, pressure of extra-vesicle tumors, polyuria, yeast cystitis in diabetes and eye strain.

AHLWEDE, E.: **Digestion of Keloids, Cicatrices and Buboes with Pepsin-Hydrochloric Acid.** *Archives of Dermatology and Syphilology*, February, 1921, iii, No. 2, p. 142.

Unna has recently proved in his latest histological experiments that the digestive power of pepsin and hydrochloric acid combined

penetrates the horny layer of the epidermis. After penetrating to a certain depth it affects certain diseases of the cutis and subcutis. The following solution was used on keloids and cicatrices: pepsin, 10 c. c.; muriatic acid, 1 c. c.; phenol, 1 c. c.; distilled water to make 200 c. c. was added (phenol was added to prevent possible putrefaction). Compresses of absorbent cotton soaked in the above solution were applied and then covered with an impermeable dressing in a large number of cases. "The cosmetic effect on scarring after burns was excellent." "In case of fresh scars no trace was left after systematic application of our digesting method."

McNEIL, C.: *Anaphylaxis in Man, Its Bearing upon Hay-fever, Animal and Food Idiosyncrasy, and Asthma.* *Edinburgh Medical Journal*, (New Series), March, 1921, xxvi, No. 3, p. 188.

Taking his discussion where he begins upon food sensitization, he states: "There is not the transmission of a definite specific sensitization from parent to child, but what is transmitted is the capacity or tendency to form specific antibodies to any form of protein". The children of a sensitized parent are not born sensitized, but acquire anaphylaxis more readily than do other children.

Of 551 cases (including 530 cases of hay-fever) 42 per cent showed clinical evidences of multiple sensitization, most of which were double sensitization to early and late hay-fever. But there were 42 cases with 3 sensitizations and 19 cases with over 3 sensitizations, including 37 sensitive to horse, 35 to strawberry, 28 to shell fish and 27 to fish. These (last) facts are given by Cooke and van der Veer. Freeman states "one 'toxic idiopathy' may die out and be succeeded by another."

Historically idiosyncrasies to certain foods, shell fish, fruits, etc., have been known long before Richet experimented and named it anaphylaxis. They do not prove to be common, but when found are striking in the extreme.

Symptomatology.—The cases show local and focal sensitization of the alimentary tract, edema of the mouth and lips, urgent vomiting and diarrhea; less acute or secondary are the important urticaria and asthma.

Pathology.—The tissues morbidly affected, apart from the dif-

ferent site of the focal reaction, are capillary endothelium and unstriated muscle, the same as in the animal and vegetable idiosyncrasies of the inhalation group, and occasionally they appear in the same individual.

Etiology.—Schloss gives accounts of five cases of his own where anaphylaxis to egg white and cow's milk had been acquired during attacks of diarrhea. He also describes the following cases in infants and young children: a hyperacute type with urticaria, asthma, and symptoms of shock, most commonly due to milk or egg: bronchial asthma, and among others eczema. "In case of foods commonly used it seems probable that continued use of the food in spite of symptoms will rapidly lower and then abolish the sensitiveness of the patient." In adults if the clinical history determines the outbreak following contact and inhalation, or after eating some particular food, the clue may be followed up by a cutaneous test and where positive the cause has then been discovered.

Walker states of 400 cases studied: 191 were positive to the cutaneous test, 92 to pollen, 78 to animal hair, 68 to food, 33 to bacteria. He obtained no positive cutaneous reactions in patients over 50 years of age. He also states that in his opinion many minor bronchial disturbances are really of asthmatic nature and are due to some form of food sensitization, and later develop typical cases of spasmodic asthma. Also the younger the age of incidence the more likely it is due to food protein anaphylaxis. His tests in early age incidence in asthma showed a high percentage of positive reactions to food protein, in infancy especially egg, milk and cereals, and in childhood, fish, meat and potatoes.

The author observes in conclusion that this article is fragmentary per force, because of incomplete data.

QUIGLEY, J. K.: **Hematuria in Pregnancy.** *American Journal of Obstetrics and Gynecology*, January, 1921, 1, 372.

The patient was a primipara of thirty, with history of simpler diseases of childhood, appendectomy at 24, quite well. Menstruation starting at 12 years was quite irregular, varying from 6 to 8 weeks' intervals; amount moderate, pain moderate. Had been married nine years, and not been pregnant. Three years previous cervix

operation for sterility. During pregnancy slight vomiting and nausea. Well-compensated mitral regurgitation. In the seventh month of pregnancy urine had trace of albumin, a moderate number of leukocytes, a few red blood-cells. Blood-pressure 122/78. Only complaint heart-burn. Later intolerable general pruritus and insomnia developed. Five weeks after the appearance of albumin the systolic blood-pressure rose to 142. Urinalysis, smoky color, acid reaction, specific gravity 1.019, albumin 2 per cent, preponderance of red cells in sediment. Later the urine became more smoky, ankles swollen. The blood-pressure remained high but hematuria and albuminuria diminished under milk diet and bed rest.

Caesarean section was performed.

"Of the various causes offered for haematuria, and for hematuria in pregnancy in particular, it seems to me that the most plausible etiologic factor in this case was a toxemia, as evidenced by increased blood-pressure and edema."

JORDAN, E. O., AND SHARP, W. B.: **Effect of Vaccination Against Influenza and Some Other Respiratory Infections.** *Journal of Infectious Diseases*, 1921, xxviii, No. 4, p. 357.

This study comprises observations on 6,000 persons from Nov., 1919, to June 1, 1920. One-half were vaccinated with the bacterial suspension described below, the other half were not vaccinated. Both groups lived as far as might be expected under the same conditions; only those were considered vaccinated who received three doses subcutaneously at weekly intervals.

The vaccine was a saline suspension (in the first dose) of 500 million of the Pfeiffer Bacillus, 500 million streptococcus hemolyticus, 500 million streptococcus viridans, 1,000 million pneumococcus Type I, 1,000 million pneumococcus Type II, 500 million pneumococcus Type III. A few smaller children were given a half dose. The second and third doses were double the first.

In summarizing this extensive and exhaustive clinical and statistical report on vaccination the following is recorded:

Rhinitis and bronchitis developed with frequency about equal in the vaccinated and unvaccinated groups.

The influenzal attacks among the 2,873 vaccinated numbered

118 (4.1 per cent), and among the 3,193 unvaccinated 152 (4.8 per cent); 7 pneumonia complications with 2 deaths occurred among the 118 vaccinated patients, and 12 with 2 deaths among the 152 unvaccinated. Both the influenza and pneumonia attack rates are somewhat lower among the vaccinated, but the difference is small. Pneumonia not associated with influenza was less frequent among the vaccinated, only 6 of the 19 patients having been vaccinated. That any considerable degree of protection against influenza was conferred seems unlikely.

RENAUD, M.: **Provocation of the Beneficial Crisis in the Primitive Pneumopathies by the Intravenous Injection of Anti-pneumococcal Serum and Adrenalin. Statistics, Results. Attempt at Interpretation** (Provocation de la crise salutaire dans les pneumopathies primitives par l'injection intraveineuse de serum anti-pneumococcique et d'adrenaline. Statistique, resultats. Essai d'interpretation). *Bulletin et memoires de la societe medical des Hospitaux de Paris*, 1921, xxxvii, 919-927.

Two years ago, the author reported 27 cases chosen from among the most severe of a series of 130 grippal pneumopathies treated by the simultaneous and intravenous injection of adrenal and of anti-pneumococcal serum, and that, in each of the cases, the injection had been followed almost immediately by a beneficial crisis, so that he did not have one fatal case in a series which treated by the usual methods would have given under the most favorable conditions and in the best statistics at least 6 or 8 deaths. Since that time the author has treated a large number of pulmonary affections, about 500 cases, a hundred of which have been very mild cases and another hundred serious, if not grave. Most of the patients were affected either with pneumopathy of primary appearance of the pneumococcal pneumonia type, or secondary pneumopathy, with endemic or epidemic affections which one qualifies at will as seasonal or grippal affections, the symptomatology of which seems to be the same, and indistinguishable in the absence of any anatomical or biological criteria. Here are reported 17 new observations, a large number of them belonging in the year 1919. The percentage in the first series was 20, in the second 4, not because of the form of the disease which was just the same as that in

1919, but the manner of treatment has changed. With absolute confidence in his very simple therapy, he has been led to restrict more and more the indications for artificially bringing about the crisis.

Among 30 cases, 20, in spite of the apparent immediate severity of the affection, were cured in less than five days, without their condition inspiring disturbance at any time and without need of any serotherapy or any medication other than preventive digitalin. The last ten were only from an affection truly grave, especially on account of suffering extensive pulmonary lesions and of the successive development of fresh focal lesions. In treating patients of this latter class only belongs the discussion of the opportunity for artificially effecting a beneficial crisis. The judicious and opportune use of the serum adrenalin injection is the only process which effects the cure of all of these. In cases seen for the first time in the last stages of the malady this treatment is indicated. Then there are those cases which have been correctly treated since the beginning of illness. The author subjects such patients systematically as in typhoid to cold baths. If in five days fever does not subside, it is time for alarm. If the pulse which during the illness scarcely exceeds 100 becomes more rapid and at the same time the temperature (which after two days of bathing rarely exceeds 39°C . [102.2°F .]) rises and does not again fall with baths, if the respiratory trouble appears to be accompanied by signs of the slightest cyanosis, a bleeding is undertaken which often suffices to cause a decrease which follows the crisis. But if then the signs of heart fatigue and of lung encumbrance are accentuated, the moment for provoking the crisis has come. Under such conditions success is immediate and certain. No positive case illustrates this point better than the history of the only patient the author has seen die of pneumopathy since 1919. The patient, a young man of 20, was affected with a severe form. The existence of focal lesions in the two peaks was clearly evident. The author saw the patient on the fifteenth day when he presented no particularly grave symptom. But in the ensuing days, in spite of the cold baths, no cessation was produced. The author debated the need of crisis provocation, but did not see any urgency, and waited. On the next day the physician was prevented from seeing the patient and on the following day learned that the patient had died the preceding night. This is the only case he lost. Used 44 times in 750 cases the results were most satisfactory. Before using he had 5 per cent mortality. This might have been with experience and without the crisis provoca-

tion reduced to 2 or 3 per cent; but even at that, this latter treatment has surely saved a dozen patients. As the treatment is only an exceptional method, inconveniences incurred are not to be considered as contra-indications. Immediately upon injection—even while it is being done—a lipothymic state appears. The face blanches, the patient is in anguish, the pulse becomes filiform, respiration is almost suspended. This picture is more impressive than grave, for the malaise is of short duration, two or three minutes. A fatal accident is possible but the author has not seen one. It must however be considered since no therapy would then be efficacious. Within the hour following the injection an impressive syndrome is presented but this is not grave. The patient is taken with malaise, and anguish, peripheral cooling and chills. The temperature rises above 40° C. (104° F.). This period lasts from 10 to 30 minutes. Soon the pulse becomes ample, the skin regains its color, becomes warm and covered with sweat and the patient regains well-being. It would seem illogical to try to diminish in any way whatsoever these disturbances, which are the purpose of the therapy. The more profound they are, the better the end is reached. This treatment is followed by disappearance of the infectious phenomena, general improvement, a urinary debacle and the disappearance of the purely congestive pulmonary foci. The full result is an entrance on convalescence. The interpretation of this crisis is difficult since it is the result of several factors. Success did not follow the use of adrenalin and serum separately, but only on their simultaneous use.

The intravenous injection of $\frac{1}{2}$ milligram (.0077 grain) of adrenalin has effects so immediately, so sure and so easy of determination, that it would be unreasonable not to attribute the principal rôle in the provocation of the profound disturbance which the beneficial reaction calls forth. The cadaverous paleness of face and the elevation of arterial tension are the most striking testimony of an immediate and brutal excitation of the whole sympathetic system on which depend, without doubt the anguish with sensation of epigastric occlusion and the functional troubles of the lungs and heart. The vasoconstriction in all the organs is of highest importance, especially in the lungs where it must rapidly clean out congestive foci. The action of the serum is still more complex. Peptonic shock is one of the factors of the crisis, but it is not the only one. It would surely be inaccurate not to take into consideration at all the specific action of antipneumococcal serum. This has manifestly an experi-

mental value and if its general use as preventive or curative, does not warrant its recognition as highly valuable as a therapeutic, still it is not to be neglected. At first the author used antimentingococcoc and antidiphtheritic serums. The improvement did not seem so frank or complete. Here the author quotes his other numerous successes in forcing rapid reactions on the organism by injection of toxic substances of bacterial origin—typhoid vaccine (Nos. 56 and 65 *Presse Med.*) What one obtains indeed by the injection of adrenalalin serum, made during an acute pneumopathy, is a complex identical to that which normally terminates the disease. The therapy does not create the crisis, but provokes it.

SMEAD, L. F.: **Thrombophlebitis During the Puerperium Following Influenza, with a Report of Cases.** *American Journal of Obstetrics and Gynecology*, February, 1921, i, No. 5 p. 447.

The pyemia makes the disease so serious, and for a long time it has been deemed possible to treat it operatively. In other fields of surgery, John Hunter, in 1784, had ligated the saphenous vein for pyemia. In 1884 Zangl had ligated the internal jugular vein for lateral sinus thrombophlebitis. In 1898 Freund suggested that, as in certain cases of fatal puerperal infection the only lesion present was a thrombophlebitis of the spermatic veins, the ligation or excision of these vessels would be a practical operation. Sippel in 1894, and Lusk in 1896, suggested hysterectomy with the excision of the thrombosed veins for this condition. In 1902 Trendelenburg reported the first successful ligation of the pelvic veins. He and Brumm kept the interest in this condition alive. Many papers have been written on the pro and con of operative treatment.

Thrombophlebitis exists in 30 to 50 per cent of patients dying of puerperal fever. There are many reasons why this condition should be frequent in the puerperium. The blood current is slowed in the pelvic veins and in the veins and sinuses of the uterus, because the large vessels of pregnancy have less to do and because the woman is quiet in bed and is weak and anemic after delivery. Some of the veins are even filled with clots or thrombosed, and so is the subinvolved uterus. Increased viscosity of the blood and high platelet-count of pregnancy favor thrombosis. The traumatized

pelvic veins and the open, torn uterine sinuses are especially susceptible to thrombophlebitis. The determining factor, however, in the infection enters, as a rule, through the placental site, and also through tears in the cervix and vagina, and probably not uncommonly by the general circulation from such foci as infected teeth, tonsils, and air passages. The germ is usually streptococcus. There is an acute virulent, rapidly progressing type and a less virulent, subacute, slow one. The acute infection goes rapidly along the interior of the blood-vessels as an acute phlebitis. It proceeds more rapidly than the thrombus formation, reaches the general circulation, and quickly produces a fatal septicemia. The subacute infection also extends as a phlebitis, but is preceded by a thrombosis, which delays or blocks its progress. The prognosis is better than in the acute variety. The mortality, however, is very high. In thrombophlebitis infection begins in the torn open venous sinuses of the placental site and extends through the veins of the uterus to the pelvic veins. From there it extends to the ovarian, uterine, median, or smaller veins to the vena cava and general circulation. In less virulent cases the infection is delayed or entirely blocked by the thrombus formation which has preceded the infection and is in this case a conservative process. In many cases the infection works by the softening thrombus, and with bits of thrombus escapes into the circulation. Rapid rise in temperature, chills, metastatic foci in the lungs and other organs. Massive, suddenly fatal, pulmonary emboli are rare. Later the disease breaks through the vessel walls, producing a perivascular lymphangitis, and often a localized collection of pus. Abscess in the walls of the uterus is a common complication.

The temperature is quite characteristic. It rises suddenly from normal to 105° or 106° F. (40.56° or 41.11° C.), and falls to slightly above the normal, where it remains until the next sudden rise. During the high temperature the patient looks flushed and ill, but during the remission it is hard to believe that he is not entirely well. This type of temperature is often preceded, for a few days, by a low-grade fever. Severe prolonged chills are present in most cases, but may be absent. The early appearance of chills is supposed to indicate a grave prognosis. Their disappearance bodes fair for an early recovery. Fatal cases, however, may occur without any chills. The pulse rate fluctuates with the temperature, but is relatively low until the patient begins to suffer from severe sepsis, which is the re-

sult of the development of metastatic foci or of extensive abscess formation about the veins or of septicemia. The blood cultures are as often negative as positive. Cultures taken near the time of a chill or sudden rise of temperature are more often positive. It is not of prognostic value. The presence of constant positive cultures is, however, of serious moment.

The disease lasts for months. It may last for many weeks even without complications. The onset usually occurs early in the second week, sometimes a few days after labor.

In phlebitis of the pelvic veins pain is usually absent. Slight tenderness about the involved veins is the rule. Pain sets in when the infections break through the vessel walls. Usually the vessels can be palpated at some stage of the disease. The ovarian vessels, when involved, often cannot be palpated. In the early stages the uterus is usually involved and the discharge will contain streptococcus. In the chronic cases the uterus is small and firm. Puerperal thrombophlebitis may be located in the veins outside of the pelvis.

The prognosis in this disease is not favorable. In non-operative cases the mortality is estimated at 50 to 100 per cent. Sanes gives 51.6 percent if the cases were hopeless from the start, and should not have been operated. Williams thinks that early cases involving the ovarian vein only should not have more than 10 per cent operative mortality.

Prophylaxis consists of intelligent, modern obstetrics, with careful asepsis, complete evacuation of the uterus, good drainage, a minimum amount of traumatism, and as little hemorrhage as possible. The circulation, during puerperium, should be kept active. Good food, fresh air, heart stimulation, if necessary. Get the patient out of bed as early as is reasonable.

Non-surgical Treatment.—Keep up body resistance, good food, fresh air, avoidance of dislodgement of the thrombus by douches, enemata, and pelvic examinations. Vaccine and serum treatment has been disappointing. Surgical treatment has been made in ligation or excision of the involved veins, drainage of perivascular abscesses—the transperitoneal route being preferable. Baldwin has had good results with complete hysterectomy. He ligated the arteries only, leaving the proximal ends of the veins open for drainage. It is useless to operate pelvic thrombosis if serious metastatic foci exist, or if there is a constant bacteremia or septicemia, pelvic cellu-

litis, marked peritonitis or extensive perivascular abscess. The sub-acute cases may offer the most chance for operation.

The majority of cases should not be operated.

QUIMBY, W. A.: **The Co-Existence of Gall-Bladder and Appendiceal Infection.** *West Virginia Medical Journal*, 1921, xv, 330-332.

The co-existence of gall-bladder and appendiceal infection is very common. New and more accurate information is gained relating to pathology of these diseases by x-ray examinations. The majority of the patients upon presenting themselves for examination describe the symptoms with the old term "indigestion". The most constant symptoms related by the patient are gas in the stomach; the presence of gas frequently causes an embarrassed heart. The next most common complaint is aching between the shoulder-blades. Pain is present across the back on a level with the upper pole of the kidneys. When the third and fourth parts of the duodenum are extensively involved, there is a distress in the right upper quadrant close to the edge of the ribs. A cholecystitis may produce pain or distress most anywhere in the chest, especially beneath the sternum and in the left lower chest. Less frequently the pain extends out as far as one or both elbows. A persistent cough may be among the chest symptoms. Nervous disturbances such as insomnia, chill and fever sensations are not uncommon. When pathology is extensive there may be pain on the left side where the main portion of the stomach lies. Some days the patient will enjoy good health; other times the least food taken, such as milk or water, causes intense disturbances. Where the appendiceal symptoms predominate in conjunction with or aside from the usual local tenderness, the stomach may be greatly disturbed, causing nausea, pyloric spasm, chest pain, cramp across the waist line, diarrhea, constipation, etc. Various lesions of the right kidney and ureter are often confusing with the gall-bladder, duodenum and appendix. Such acute and febrile diseases as typhoid, influenza, etc. are pointedly responsible, as the source of infection in the gall-bladder and appendix. Patients state they had no trouble whatever until after the influenza. Focal infection is the most satisfactory explanation for the majority of these cases. A thickened gall-bladder, containing heavy bile, in

other words a pathologic gall-bladder can practically always be visualized on a radiograph. The appendix is frequently not visualized because the inflammatory process decreases the lumen excluding the barium. The question as to just when the appendix alone is diseased and should be removed and when the gall-bladder only, should be treated surgically. The belief of the author is that in the earlier stages of the chronic condition, one or the other will give predominating symptoms, usually the appendix. If the appendix only is removed, the patient returns within the year complaining of no permanent relief. If a patient is complaining enough to justify a barium test of one part of the gastro-intestinal tract, surely the entire tract should be gone over and when the gall-bladder is affected, it should be treated surgically at the same time as the appendix.

PALMER, G. T.: **The Taking of Temperature in the Diagnosis and Treatment of Tuberculosis.** *Illinois Medical Journal*, September, 1921, xl, No. 3, p. 161.

In 4,000 cases studied in sanatoria for the tuberculous, Palmer concludes that our unfortunate results are due in large measure to inaccuracy and neglect in taking the temperature. With the diagnosis made, temperature is the determining factor in:

- (1) The classification of patients.
- (2) In measuring the amount of rest and exercise.
- (3) In prescribing the character and extent of occupational therapy.
- (4) In regulating the administration of specific medication.
- (5) In settling the most important of all questions—the quiescence and arrest of the process and the discharge of the patient.

He found that 80 per cent of tuberculous patients were handled and discharged without definite knowledge as to whether they are febrile or afebrile and the causes for this are due to:

- (1) The employment of cheap and undependable thermometers. (Only standardized instruments should be used).
- (2) Lack of knowledge on the part of nurses and attendants as to the basic principles of temperature taking.
- (3) Permitting patients to take their own temperatures. (This he states, is undependable and often patients deliberately falsify as

to what their temperature is so as to avoid restrictions of their recreation and liberty. Also certain nervous and apprehensive patients are harmed by a knowledge of their temperature curves and therefore this knowledge should be withheld from the patient, especially during the active stage of the disease).

(4) Insufficient time allowed in taking the temperature; for oftentimes thermometers held in the mouth for one minute, temperature may be subnormal or normal while if held for 2, 3, 5, or 10 minutes, readings may show it to be elevated. The author cites 3 such cases in particular. In one of these the thermometer read 100° F. at one minute, 100.8° F. at two minutes and 102.2° F. at five minutes.

(5) Infrequency of readings and the selection of improper times of the day for such readings. A temperature reading before breakfast and before the teeth are brushed or before any hot or cold food is taken was found to be of genuine worth giving usually the daily minimum which has definite significance. Temperatures should be taken at very frequent intervals.

(6) Failure to determine the temperature reaction to varying amounts of exercise and exertion. Every patient considered for discharge should undergo frequent temperature tests at rest and after varying degrees of exercise, extending over a period of from 7 to 10 days. Unless it is known that the patient is running a normal temperature twenty-four hours in the day and is capable of prolonged and vigorous exercise without temperature reaction, discharge, as an arrested or quiescent case is unjustifiable.

G. H. LORDI.

REHAN, R. J.: **Triple Calcium Phosphate as a Stimulant for Bone Reproduction (Healing) in Fractures.** *Medical Record*, April 16, 1921, xcix, 650.

The author and Dr. Schultze, in 1913, experimented on embolism in fractures, especially where they occurred in old tuberculous areas and ankylosis. Fractures would occur during an attempt at reduction. In Prof. Lorenz's Clinic in Vienna, two patients died during the forcible correction and reduction of an ankylosed joint. The essentials in new bone formation are cells and calcium phosphate, the

latter to render them hard. The cells are practically always present at the site of fracture. In inflammation of the bone, the bone is destroyed and calcium is liberated. This liberated calcium must act as a stimulating factor for increased bone production. The same thing takes place where there is considerable destruction of bone tissue. The fragments of bone become dissolved and the calcium is freed, thus permitting it to stimulate to an abnormal degree in the bone cells, which are present in the area of its deposit.

Calcium salts, if absent, can be supplied by two methods: first, through the blood, and second, by direct implantation. Feed the patient with tissue containing plenty of calcium. A normal amount of vitamins must supply the fundamental principles necessary for cellular reproduction. The chief essential is calcium, and this can be supplied directly by using it in drug form in the different solutions of calcium phosphates, etc., which are in the market. Vegetable foods and fresh milk are essential.

The experiments on animals showed an appreciable increase of bony tissue in from 2 to 3 weeks.

MASON, E. C.: **The Pharmacologic Action of Lead in Organic Combination.** *The Journal of Laboratory and Clinical Medicine*, May, 1921, vi, No. 8, p. 427.

The frequent occurrence of lead poisoning, accompanying the extensive use of lead compounds in the various arts and trades, has made the subject of *lead poisoning* one of wide-spread interest. In spite of the enormous number of observations made and recorded by various investigators, the mode of action of lead on the body has not been definitely determined. Most of our knowledge has been limited to clinical observations.

The author in his work makes the following conclusions: Triethyl lead and salts of triethyl lead are extremely active in stimulating the central nervous system. The stimulation is confined mainly to the medulla and higher centers including the pons, midbrain, and perhaps certain portions of the cerebellum and cerebrum.

The injection of from .0025 to .0050 grams of the salt is sufficient to produce the characteristic action in a medium-sized dog, the most conspicuous objective being the production of con-

vulsions. In character these convulsions correspond to those produced by cyanids and picrotoxin, but in degree, approximately to those of strychnin.

There is an extreme fall in blood-pressure following the first injection of the compound, but a marked and prolonged rise in blood-pressure following all subsequent injections. The fall in blood-pressure is due to at least two, and probably three factors:

- (1) Stimulation of the inhibitory vagus center for the heart.
- (2) Sudden dilatation of the vessels of certain visceral organs, including the spleen and kidney.
- (3) A direct depressant action on the heart.

The rise in blood-pressure following the second or subsequent injections is due to:

- (1) Constriction of the vessels of the kidney, spleen and possibly other organs.
- (2) Stimulation (in the medulla) of sympathetic nerves to the heart.

(3) General systemic convulsions in case these are present. But the secondary rise in blood-pressure occurs independently of the existence or absence of general convulsions, although these, if present, increase the extent of the rise.

Respiration is stopped by the first injection and greatly increased by subsequent injections. The primary cessation seems to be due to excessive stimulation of the center itself, or, of some higher inhibiting nervous mechanism, probably located in the pons or mid-brain. Acceleration and deepening of the respiration, which accompany later injections, are doubtless the result of direct stimulation to the center itself after its hypersusceptibility to the drug has been somewhat decreased by the first injection.

Following the first injection of lead triethyl acetate, the kidney and spleen volumes undergo an increase, followed immediately by a decrease, but only the decrease in volume is produced by subsequent injections. The preliminary increase in volume is probably due to stimulation of the vasodilator center in the medulla, while the shrinkage in volume of these organs following the second or subsequent injections is due to a direct stimulation of the vasoconstrictor center. (The preliminary dilatation may, of course, be explained as the result of inhibitory stimulation affecting indirectly the vasoconstrictor center.)

The dyspnea accompanying the injections is not due to spasm of the bronchial muscles, but to a direct action on the respiratory center.

Probably the increased intestinal activity following intravenous administration of the compound is the result of medullary stimulation which thus directly increases the activity of the vagus nerves. This may also account for the slow pulse, the increased peristalsis and colic, and the dyspneic, or asthmatic symptoms, of chronic lead poisoning.

The salts of triethyl lead furnish excellent examples of compounds which contain three ethyl groups (which are ordinarily considered to act as depressants on the central nervous system) but which, owing to the peculiar action of the lead contained in the molecule, act as strong central nervous stimulants, especially in the medulla, pons and midbrain, and perhaps even in the motor areas of the cerebrum, or in the cerebellum.

C. M. ANDERSON.

CULPEPPER, W. L., AND ABLESON, M.: **Chaulmoogra Oil in the Treatment of Tuberculosis.** *The Journal of Laboratory and Clinical Medicine*, May, 1921, vi, No. 8, p. 415.

The use of Chaulmoogra oil in the treatment of leprosy and various cutaneous diseases has been recorded since 1596 A. D. The oral administration of the drug was unsatisfactory because of the unavoidable gastric disturbance which accompanied it. Investigators accordingly resorted to subcutaneous and intramuscular injection. Encouraging results were obtained by mixing the oil with camphor and resorcin which reduced its irritating properties and rendered it more fluid.

The authors in their investigations attempted to determine the most effective, soluble and least irritating fraction obtained from the oil; the most effective way of administration; what pathological effect, if any, is induced by large doses of the fractions of the oil; also to determine the bactericidal properties for tubercle bacilli in vitro, and to determine whether its use will inhibit or arrest the development of artificially induced tuberculosis in guinea pigs.

They came to the following conclusions: One per cent solutions of the soluble acid sodium salt of the four acid fractions of Chaul-

moogra oil were apparently the most active, soluble, and least irritating when administered hypodermatically. There was a conspicuous absence of the drug in the peritoneal cavity of an animal when it came to autopsy although less than 24 hours had elapsed after an heroic dose.

The animals showed a marked gain in weight after receiving the Chaulmoogra oil, probably indicating their complete assimilation. They found fraction "A" and "B" to be the most potent.

No pathologic findings which could be attributed to the drug were found at necropsy of pigs receiving the Chaulmoogra salts. A 1 per cent solution of the acid sodium salts of all the acid fractions of Chaulmoogra oil were found to be nontoxic as shown by the fact that no pigs were lost: on the other hand all showed a marked increase in weight after administration of heavy doses. The presence of a vitamin or some element which has a marked influence on the weight of the pigs was suggested.

The peritoneal administration in the case of guinea pigs was found to produce no unfavorable effects. In this case peritoneal administration was found to be a method by which the salts may be readily absorbed by the body.

They found the acid sodium salt of Chaulmoogra oil had a specific bactericidal action on tubercle bacilli, in a dilution of 1:10,000.

A marked difference in the pathologic findings between pigs which were and were not treated was observed, the advantage being in favor of the treated pigs. Treated pigs showed an average gain of 49 grams over the ones not treated, the time factor being kept constant.

C. M. ANDERSON.

HEAD, G. D., AND JOHNSON, R. A.: **Carotinemia. Report of a Case in an Adult.** *Archives of Internal Medicine*, September, 1921, xxviii, No. 3, p. 268.

The presence of a yellow pigmentation, sometimes showing an orange hue, has been observed in the case of children a number of times, particularly in Germany, and has been traced to the presence of carotin from an excess of carrots in the diet. Von Noorden has described a yellowish pigmentation in some cases of diabetes and call-

ed it "*xanthosis diabetica*". This pigmentation is probably of the same origin. Head and Johnson present the history of a patient with mild diabetes, who developed a marked orange yellow skin pigmentation, most intense in the palms of the hands, without involvement of the sclerae. Carrots had formed a heavy component of the previous diet. The blood-serum showed a bright golden yellow color which was chemically demonstrated to be due to carotin. The urine showed no bile pigments and the withdrawal of the carrots from the diet caused a disappearance of the pigmentation.

T. HOWARD.

ROSENOW, E. C., AND ASHBY, W.: **Focal Infection and Elective Localization in the Etiology of Myositis.** *Archives of Internal Medicine*, September, 1921, xxviii, No. 3, p. 274.

Twenty-eight patients with myositis were studied. Localized infections around teeth and in tonsils were present in nearly all of them. "Improvement in symptoms, often striking, occurred in all but 1 of the 25 patients from whom foci were removed. In the 24 patients in whom improvement did occur the focus was shown to contain bacteria which tended to produce lesions in the muscles of animals, while in the 1 patient in whom improvement did not occur the bacteria failed to produce lesions. In some patients recurrence of myositis, or only partial recovery was found to be due to defective tonsillectomies, or inadequate dental operations, to failure in recognizing the existence of foci in teeth, or to the development of new foci." In patients with associated arthritis a larger proportion of joint involvement was found in experimental animals than in the animals inoculated with material from patients without associated arthritis. The same was true in regard to patients with neural involvement. The muscle lesions found in animals inoculated with material from foci of patients with myositis were nonsuppurative. The organisms recovered and used in the experiments were mostly streptococci, both hemolytic and green-producing, which could not be distinguished culturally or morphologically from ordinary strains of these organisms. Stress was laid on the technic of isolating these strains and reproducing the lesions. Tall columns of glucose-brain broth or ascites broth providing a gradient of oxygen pressure were

used, and the animals were injected as soon as abundant growth occurred, usually within twenty-four hours. Great pains were taken to obtain bacteria from the depths of foci of infection.

Microscopic study of sections of muscles in chronic myositis and arthritis deformans and of the lesions in the experimental animals showed that the reaction in these chronic conditions is not leukocytic, but mainly mononuclear and endothelial. The endothelial cells lining the small blood-vessels become swollen, proliferate and tend to occlude the vessel. This reduces the supply of available oxygen and the partial tension resulting forms a very favorable environment for the development of the type of bacteria at hand. This fact throws light on the tendency to chronicity of these lesions, the difficulty of their cure and the value of massage and the application of heat in their treatment.

T. HOWARD.

WOODYATT, R. T.: **Objects and Method of Diet Adjustment in Diabetes.** *Archives of Internal Medicine*, August, 1921, xxviii, No. 2, p. 125.

In the management of diabetes various seemingly contradictory methods have repeatedly given good results and have frequently unexpectedly failed. Woodyatt's paper aims to correlate some of these varying views, by pointing out certain commonly overlooked factors, and to rationalize the dietetic management of these patients.

Fundamental conceptions of this disease which are emphasized are:

(1) The one specific feature of diabetes is the inability on the part of the body to utilize as much glucose as may be utilized by the normal body when the supply of glucose exceeds certain limits.

(2) The internal secretion of the pancreas governs the amount of glucose which can be utilized. It seems probable that in diabetes overstrain of this function further weakens it and that comparative rest of this function permits it to recuperate up to a certain limit.

(3) The ketanuria of diabetes is not due directly to pancreatic insufficiency but seems to be the immediate result of the oxidation of certain fatty acids in the absence of a sufficient proportion of "oxidizing" (dissociated) glucose. Ketonuria develops if the pro-

portion of higher fatty acids to glucose actually catabolized is greater than 1.5:1.

A study of fasting individuals shows that a certain amount of body fat and protein are catabolized. The less the amount of available fat, the larger will be the amount of protein burned. There is, then, nothing gained in diabetes, in depriving the patient of at least the amount of fat which would be catabolized in any event, as it is the fat burned, and not necessarily the fat ingested that leads to ketonuria. In fact the administration of this amount of fat will spare a certain amount of body protein. This is of advantage not only in saving body tissue but actually reduces the amount of glucose, as protein furnishes 58 grams of glucose per 100 grams. This observation explains the paradoxical condition sometimes encountered, in which the carbohydrate tolerance appears to be lower on extremely restricted diets than on a more liberal fare.

The fate of the food stuffs in the body is commonly disregarded in considering the treatment of diabetes, yet it has an important practical bearing on the subject. Carbohydrates are utilized in the form of glucose. Proteins yield 58 grams of glucose per 100 grams, and the equivalent of 46 grams of higher fatty acids in ketogenic amino-acids. One hundred grams of fat yield 90 grams of fatty acids and 10 per cent of glucose. Therefore the glucose afforded by a given diet should be estimated as all of the carbohydrate plus 58 per cent of the protein plus 10 per cent of the fat. The fatty acids should be estimated as 90 per cent of the fat plus 46 per cent of the protein.

The optimal diet should contain all of the glucose that the patient will tolerate, at least 1 gram of protein per kilogram (2.2 lbs.) of body weight in order to maintain nitrogen balance, and the caloric balance in fat, not exceeding a ratio of 3 grams of fatty acid per gram of carbohydrate. The amount of fat allowable in order to secure this ratio is equal to twice the amount of carbohydrate plus one half times the amount of protein. ($F = 2C + P/2$).

For example, a patient weighing 50 kilograms (110 lbs.) has a tolerance of 100 grams of glucose (F = fat, P = protein, C = carbohydrate). The daily amount of protein required would be 1 gram for every kilogram or 50 ($P = 50$). The $F = 2C + P/2$ becomes $F = 2C + 25$. The glucose tolerance is 100 grams. Now the glucose yielded by the 50 grams protein will be 0.58×50 , or 29 grams,

leaving $100 - 29$, or 71 grams to be distributed between carbohydrate and fat. In other words, $C + 0.1F = 71$. From this we obtain $F = 710 - 10C$. But we also have from the above $F = 2C + 25$. So $2C + 25 = 710 - 10C$, solving which $C = 57$ grams. Substituting this value for C in $F = 2C + 25$ we find $F = 139$ grams. Then the optimal food combination that will fulfil the conditions and relations specified is: carbohydrate 57 grams, protein 50 grams, and fat 139 grams, which amounts to 1680 calories.

T. HOWARD.

GOLDSMITH, A. A.: **Syphilis of the Stomach.** *Illinois Medical Journal*, September, 1921, xl, No. 3, p. 197.

Goldsmith states that this condition is not very uncommon, but that it is very frequently not diagnosed. He states that some of these patients who many years ago were told that they had carcinoma with only a few months to live and who today are still alive, are perhaps examples of this disease.

It occurs in both the hereditary and acquired forms, but in the former it is more apt to be latent and to be an accidental autopsy finding. The anatomical observations in acquired lues with involvement of the stomach, belong exclusively to the tertiary stage but secondary lues, can probably lead to at least functional stomach change.

In 200 cases examined by Neugebauer with manifest secondaries and positive Wassermann he found: 62 per cent had hypacidity; 18 per cent a trace of or failure of hydrochloric acid, and 17 per cent hyperacidity. Spirochites were found in no case. The youngest patient was 18 years of age (reported by Jerome Myers), and the oldest (reported by Wagner) was 73 years of age.

PATHOLOGICAL ANATOMY.—(1) *Gummas.*—Single or multiple may be ulcerated.

(2) *Ulcers.*—One to five cm. (.4 to 2 inches) in diameter, usually single but may be multiple (Fraenkel's case had 13 ulcers). Perforating ulcers are not uncommon.

(3) *Scars.*—These are rare, however peri-gastric adhesions are common.

(4) *Specific Chronic Gastritis.*—This is still a debated question.

(5) *Linitis Plastica Hypertrophica (Leather Bottle Stomach).*—In this we find marked infiltration of the stomach wall, involving especially the sub-mucosa. The result is an inelastic organ smaller than normal with an open pylorus.

CLINICAL PICTURES.—The clinical manifestations depend to a great extent upon the pathological condition. In the presence of gumma the picture may be that of carcinoma, whereas in the ulcerative type, it may be that of non-specific peptic ulcer. The disease may be latent and discovered at autopsy. Gigon describes three groups of cases as follows:

(1) *Ulcerative Form Resembling Gastric Ulcer Usually with Anacidity.*—Case reported by Flexner in 1891. Symptoms resembled those of gastric ulcer, but eight months after onset of gastric symptoms there was a tumor extending from the splenic region down to the navel, reaching to a point 9 cm. (3.5 inches) beneath the left costal arch. During the next few months the mass became smaller and ascites occurred, requiring several tapplings. During 1893 fluid became less in amount and the patient felt better. On the evening before his death he ate a heavy meal and the next morning a perforation occurred suddenly.

Autopsy findings revealed perforated luetic ulcer, acute peritonitis, large gumma of the liver, and old adhesions between liver, stomach, spleen and pancreas.

(2) *Pseudo-carcinomatous Form.*—This shows a palpable tumor with more or less advanced pyloric stenosis and attacks of intense pain. Case reported in which patient had symptoms resembling cancer. He was operated on and only microscopic examination proved the mass to be lues. Patient was given anti-luetic treatment and recovered, gaining 46 lbs., and was perfectly well four years after operation.

(3) *Luetic Gastric Ulcer Condition Similar to Chronic Gastritis.*—This is not spoken of as syphilitic gastritis because, first this condition has not yet been proved anatomically, and second, the clinical picture of gastritis can be produced by small gummata or luetic ulcers. Hemmeter describes a case of a negro who had gummata in the sacrum, testicle, liver and spleen. Autopsy findings were those of chronic gastritis. The mucosa and sub-mucosa were beset with numerous masses interpreted as miliary gummata by Hammeter and

Flexner. According to Pater, chronic luetic gastritis occurs in the hereditary form. The writer adds a fourth group, viz:

(4) *Linitis Plastica*.—In this the gastric wall is thickened and inelastic, the pylorus being wide open. Fluoroscopic findings are characteristic: The opaque meal pours out rapidly as from a bottle. Case cited was a male 26 years old who had been subject to attacks of pain for many years. Pain would come on suddenly, be very severe, lasting from 10 to 15 minutes and then disappear quickly. Food had no effect on this discomfort. Sometimes would have an attack every day for a week and then not again for two or three months. During the two years before entering the hospital he was somewhat better. Three weeks before entering hospital he felt a heavy sensation in the epigastrium and was nauseated without vomiting. Had heavy sensation with every meal, lasting 15 to 30 minutes. Liquids caused no discomfort. Four days after the onset he developed a pain with this feeling of heaviness. A week before entering, he vomited twice both times after eating. Three days later he vomited again this time about a teaspoonful, of dark blood and a day later some more blood. The pain became more constant, sometimes lasting all night. Gastric contents showed no free or lactic acid. X-ray showed a typical "leather bottle" stomach which emptied completely in five minutes. Wassermann was strongly positive. Complete recovery in a few weeks with luetic treatment.

SYMPTOMS.—(1) Pain, almost always and sometimes continuous, at other times dependent upon food intake and again may be nocturnal.

(2) Vomiting, so common but not so frequent as pain.

(3) Hematemesis, occasionally, only common in ulcerative form; offers nothing characteristic.

(4) Gastric secretions, always low or absent but Downes' and LeWald reported 2 cases where HCl was 30 and 36 respectively, total acidity 52 and 70. Lactic acid is always absent.

X-RAY FINDINGS.—These are grouped in three classes: (1) Dumb-bell appearance. Stomach starts to empty rapidly but there may still be a six-hour residue at cardiac end.

(2) Same as above except that there is stenosis at the pylorus. In both 1 and 2 the stomach is smaller than normal and there is apt to be compensatory dilatation of the esophagus.

(3) In this form the infiltration may involve only the pyloric

region and the findings may resemble those found in cicatrized ulcer and may be accompanied by dilatation of the stomach. The writer adds another class, viz:

(4) *Leather-bottle Appearance Mentioned Above*.—Cases without treatment usually terminate fatally in from one to three years. It does not, like carcinoma, show a steady downward course. In Eusterman's series the cases presented themselves seven months to seven years after onset of symptoms.

DIAGNOSIS.—It is impossible to diagnose gastric lues as it can simulate ulcer, cancer or gastritis. Differential diagnosis brings into consideration retro-peritoneal tumor, liver and splenic tumors. Hausman lays down the following rules: (1) Normal or increased HCl rules out lues.

DIAGNOSIS.—It is impossible to diagnose gastric lues, as it can retroperitoneal tumor.

(3) Characteristic ulcer symptoms with achylia speak for gummatous ulcer.

(4) Pyloric tumor with achylia with failure of stenosis findings and with negative Weber on stomach contents and stools speak for retroperitoneal gummatous tumor encroaching on pylorus.

(5) In gastric induration must always think of lues.

(6) Demonstrable thickening of entire stomach with form and contour retained are suggestive.

Spirochetes have never been found in stomach contents. At operation gross appearance alone is not sufficient to allow a diagnosis. A negative anemnesis or negative Wassermann is not sufficient to rule out the disease.

TREATMENT.—Is that of lues in general.

G. H. LORDI.

PARKER, G.: *Etiologic and Therapeutic Considerations in Arthritis*.
Illinois Medical Journal, September, 1921, xl, No. 3, p. 200.

In the hypertrophic forms of arthritis of the knees, Parker, after failing by ordinary means to cure his obese patients, thought that obesity might indicate a disturbance of carbohydrate metabolism. Accordingly blood sugar and basic metabolism estimations were made. He says that if less oxygen is consumed in these cases there must be

some effect in the local exchange of gases in the affected joints. As a result of these observations therapeutic relief was undertaken by the limitation of carbohydrates, principally sugars and the administration of thyroid extract. He obtained the following results:

(1) Body weight was reduced, thus tending to remove the mechanical factor.

(2) Blood sugar was reduced, removing any irritating influence this weight might have upon the joints and reducing metabolic strain.

(3) Metabolic rate was increased, facilitating the local exchange of oxygen in the affected joints.

Results of Treatment.—In 20 women patients between the ages of forty and sixty, whose weight varied from plus 15 to 40 lbs. he found that early cases showed marked benefit within two weeks. In the more stubborn cases other therapeutic measures were used, as hot packs, rest and phenyl cinchophonic acid. Blood chemistry showed no increase in uric acid in any case.

All except 2 patients had a lowered sugar tolerance. Fifteen cases showed a minus metabolic rate, varying from minus 8 per cent to minus 30 per cent and 2 cases showed an increase in basal metabolism. Both of these cases showed the presence of a small goiter. Ten cases showed focal infection at the first examination. Five cases had foci removed without relief. Five cases had no foci. All cases showing a minus metabolic rate and a lowered sugar tolerance were further benefited by limitation of carbohydrates and thyroid extract.

In cases reported by Pemberton and Foster, a lowered sugar tolerance proportional to the severity of the disease was noted and they believe that in such cases there is a difficulty in the utilization of food in arthritis and that restriction of diet, together with the use of reagents hastening metabolism has a beneficial influence upon these cases. X-ray, radium, thyroid extract, arsenic, muscular exercise, massage and psychic excitement have benefited certain cases, and coincident with this benefit there has been a hastening of metabolism. Arthritics receive more benefit if decreased food tolerance and metabolic disturbances are taken into consideration and measures used to increase metabolism along with the removal of focal infection.

G. H. LORDI.

CAMPBELL, J. M.: **Acholuric Jaundice.** *Guy's Hospital Reports*, July, 1921, lxxi, 274.

In 1898 Hayem gave four cardinal symptoms of this disease; chronic icterus, large spleen, anemia, bile pigment in the serum but not in the urine. In 1900 Minkowski reported 8 cases in one family. The urine in these cases contained an excess of urobilin. In 1907 Chauffard described changes in the fragility of the red blood corpuscles. Normally this begins at .45 NaCl and is complete at .36. In this disease both limits are shifted to the right. Splenectomy causes an improvement. The disease is produced by a primary deficiency of the red blood corpuscles or by some splenic anomaly. On account of the increased hemolysis these patients are subject to gall-stones.

H. JOACHIM.

CULLEN, E. K.: **Diverticulum of the First Portion of the Duodenum.** *Archives of Surgery*, 1921, ii, 542-546.

The author presents a case, a woman of 40, complaining of some discomfort in the right lower abdominal quadrant with associated nervousness and severe headaches. The patient's general physical condition was good. There was some tenderness on deep palpitation over McBurney's point. There was slight decensus of the uterus. Examination of the eyes was negative. The urine was normal. Tonic treatment produced marked improvement. Within the year she had an attack of "gastro-intestinal grip". The onset of this attack was marked by severe vomiting, a rise of temperature to 102° F. (38.89° C.) and severe diffuse pain over the epigastric and gall-bladder regions. There was no jaundice, but there was obstinate constipation. The pain which had persisted with some intermittence had assumed a boring-like character, most pronounced from three to four hours after meals, and was located just to the right of the median line. On light palpitation, considerable tenderness was elicited, but no definite spasm was present. There was also tenderness to a less degree over the gall-bladder area. The area of stomach tympany was not increased. There was slight tenderness on deep palpation over McBurney's point. The roentgenologic examina-

tion furnished a report that there existed a duodenal diverticulum, disturbance in the position, outline and function of the cecum, probably secondary to adhesions.

At operation it was found that the gall-bladder, duodenum and gastrocolic omentum were involved in adhesions. A small portion of the gastrocolic omentum had in turn become adherent to the anterior portion of the duodenum and the gall-bladder. In separating the adhesions, the first portion of the duodenum was pulled upward, causing a distinct sacculation. A posterior gastro-enterostomy was performed. A roentgenologic examination was made showing great improvement. Six weeks later the patient reported that she has been on an unlimited diet for several weeks, and is free from epigastric pain or distress.

Nixon, P. I.: Acute Dilatation of the Stomach following Gynecological Operations. *Texas State Journal of Medicine*, March, 1921, xvi, 481.

Acute dilatation of the stomach is a condition which arises under varying circumstances. The dilatation is enormous and may or may not be accompanied by an associated dilatation of the duodenum.

A large percentage of cases (41 per cent according to Conner) follow operations under general anesthesia. Most of this group of cases follow abdominal operations, although cases have been reported following amputation of the breast and operations on the extremities. It is rather unusual that operations on the stomach itself do not predispose to this condition.

The mechanism of the production of acute dilatation of the stomach is difficult to explain. Most authorities are inclined to believe that paralysis of the stomach musculatures, of central or peripheral origin, is the underlying causative factor. Conner has been struck by the frequency with which this condition has been found at autopsy to be associated with mesenteric compression of the terminal portion of the duodenum, where it passes behind the root of the mesentery. Normally, the lumen of the duodenum is flattened out by the pressure of the mesentery containing the superior mesenteric artery, the pressure being exerted against the vertebral column. Conner believes that the presence of a considerable part of the intestines in the

pelvis causes increased traction downward on the mesentery and subsequent occlusion of the terminal portion of the duodenum. As prerequisites for the entrance of the intestines in the pelvis, he mentions dorsal decubitus, an intestine empty of gas and feces and a mesentery of suitable length. To these might be added a flabby abdominal wall which is incapable of retaining the intestines in their normal position.

Harrigan has pointed out a striking similarity in symptoms between acute dilatation of the stomach and high duodenal obstruction produced experimentally in animals and assures that both conditions are caused by paralysis, inhibition or failure of function, toxic in origin. Vomiting is the most constant symptom. The odor is very foul. Gas in great quantities is eructated. Distention quickly ensues. It begins in the left hypochondrium and, as the case advances, involves the adjacent parts of the abdomen; in extreme cases it may involve the entire abdomen. The amount of pain and tenderness varies. The rapid development of collapse is to be expected. Cases diagnosed early and treated properly have a good chance for recovery.

In the treatment of the disease medicines play no part except in combatting the shock. No food or water should be given by the mouth. Thirst and other dehydration symptoms are met by frequent saline enemata, by hypodermoclysis and by intravenous injections. The surgical results are so discouraging that they are mentioned only to be condemned. The two essential methods of treatment are gastric lavage and posture. Frequent and complete emptying of the stomach by means of the stomach tube will give immediate relief. The tube should be passed every 4 to 6 hours, depending on the recurrence of symptoms. The tube should be manipulated so that it reaches the lowermost part of the stomach; this means that it must be inserted far beyond the usual distance. Frequent assumption of the prone position should be combined with gastric lavage. The patient is placed with the face downward and the pelvis moderately elevated, or in the knee-chest position. This accomplishes two things, the fluid is displaced upward so that the stomach more readily empties itself by the mouth and relief is afforded from downward traction of the mesentery on the terminal portion of the duodenum, thus tending to relieve the mechanical obstruction. The treatment may be summarized in a few words; fluids, lavage and posture.

The case reported is of a woman of 32, who after having a tumor removed suffered acute dilatation of the stomach. The treatment described above was instituted and the results were wonderful. The abdomen was reduced by one-third after the lavage.

SECTION ON LABORATORY AND RESEARCH

SCHMIDT, C. L. A.: **Immunological Experiments with Denatured and Insoluble Proteins.** *Journal of Immunology*, July, 1921, vi, No. 4, p. 281.

The mechanism involved in the heat coagulation of protein consists of (a) denaturation, and (b) agglutination. The first step is a process of dehydration. To study the influence of denaturation, coagulation, and insolubility in the production of fixation antibodies, rabbits were immunized respectively against the following antigens: Egg albumen, heated (dry) to 100° C. (212° F.), egg albumen heated in solution to 100° C. without coagulation, egg albumen coagulated by heat. The sera of these animals reacted equally with the native (unheated) and with the denatured antigen. Using sodium caseinate as antigen, fixation antibodies were demonstrated in the sera of rabbits which had been immunized by injecting a suspension of washed casein.

W. LINTZ.

BURNETT, T. C., AND SCHMIDT, C. L. A.: **Immunological Experiments with Catalase.** *Journal of Immunology*, July, 1921, vi, No. 4, p. 255.

The authors conclude that oxidases are not antigenic while peroxidases (a group including tyrosinase and laccase) whose function appears to consist in facilitating the transfer of oxygen from peroxids to substrate, are not only antigenic but also possess a marked specificity. The sera from rabbits which had received repeated injections of catalase prepared from calf liver, when mixed with

homologous antigen, gave a precipitate which carried with it catalase from the solution, in amounts dependent upon the quantities of sera used. There was no evidence that a true inhibitory antibody was present in the sera of the injected animals, since the precipitate was as active as the antigen in the liberation of oxygen from neutral H_2O_2 .

W. LINTZ.

GREELEY, H., AND BRERETON, M.: **The Bacteriology of Chronic Nontuberculous Lung Disease.** *The Journal of Laboratory and Clinical Medicine* April, 1921, vi, No. 7, p. 349.

Various higher fungi may be cultivated from the sputa of chronic nontuberculous, and probably from many cases of tuberculous lung disease. This is most easily done through the use of selective media.

Evidence is adduced that such organisms are extremely numerous in such sputas, and that they are probably potent in the disease process, acting alone in some cases, and in coöperation with the tubercle bacillus in a few others.

As of assistance in the eventual complete identification and classification of the organisms to be found in sputa, it is thought that important evidence has been adduced of the extreme pleomorphism of certain fungi, probably common therein under forms morphologically representing yeasts, cocci, and bacilli.

C. M. ANDERSON.

EGGSTEN, A. A.: **The Alkali Reserve of the Blood-plasma During Protein Shock.** *The Journal of Laboratory and Clinical Medicine*, June, 1921, vi, No. 9, p. 481.

The shock produced by the intravenous injection of foreign proteins recently advocated in the nonspecific treatment of chronic infectious processes is frequently associated with symptoms suggestive of acidosis. In order to determine a decrease in the blood alkalies of animals shocked in this manner a series of investigations have been carried out of which this communication constitutes a report. The following conclusion was made:

The alkali reserve of the blood-plasma is greatly decreased in shock, following the intravenous injection of toxic proteoses and typhoid vaccines in dogs and in human cases. There was found a definite relationship between the decrease of the alkali reserve of the plasma and the lowered blood-pressure in toxemic shock. When the alkali reserve of the blood falls below thirty volume per cent, following protein shock, the animal's life is in danger. The administration of sodium bicarbonate preliminary to the injection of a toxic protein retards the fall of the blood alkalies to this critical point. When the alkali reserve has been lowered in protein shock, it may be restored by the intravenous administration of sodium bicarbonate, which apparently relieves distressing symptoms. Also it would seem advisable to administer alkali in the treatment of infectious diseases and other toxemias for the relief of respiratory and circulatory symptoms so frequently found in these conditions.

C. M. ANDERSON.

GAY, F. P., AND RHODES, B.: **Experimental Streptococcus Pneumonia and Empyema.** *The Journal of Infectious Diseases*, September, 1921, xxix, No. 3, p. 217.

The authors have succeeded in producing bronchopneumonia followed by empyema in every one of the 18 rabbits used in their study. Their conclusions are:

Experimental pneumonia may be produced in the rabbit by bronchial insufflation of very small amounts of a passage culture of hemolytic streptococcus. Histologically this pneumonia is lobular in distribution, necrotizing in effect, does not resolve readily, and is characterized by peribronchial and perivascular edema and later infiltration of mononuclear cells (interstitial bronchopneumonia). It is quite different in character from the pneumonia produced by the pneumococcus. These differences are further marked by the occurrence of pleurisy with effusion, involving by extension both pleural cavities and the pericardium, in the streptococcus infection. On the other hand, septicemia is the rule with the pneumococcus infection but not with the streptococcus. Both forms resulted fatally. The natural route of infection with the streptococcus seems to be from the alveoli to the pleura, rather than by the lymphatics of the larger

bronchi. When injections are made into the pleural cavity, the micro-organisms never penetrate through the pleura into the lung tissue. This would militate against the idea of a lymphatic stream from pleura to hilum. Experiments with an artificial respiration chamber seemed to prove that the streptococcus passes from the lungs to the surface of the pleura in a few minutes. It is evident, however, that conclusions derived from such experiments cannot explain conditions in the living body where it is found that involvement of the pleura takes place in a matter of hours (6 to 12) rather than of minutes.

M. M. BANOWITCH.

MACCARTY, W. C., AND MAHLE, A. E.: **Relation of Differentiation and Lymphocytic Infiltration to Post-operative Longevity in Gastric Carcinoma.** *The Journal of Laboratory and Clinical Medicine*, June, 1921 vi, No. 9, p 473.

In spite of the fact that the length of postoperative life is in inverse relation to the degree of glandular involvement, there is a sufficient number of exceptions to demand further investigation. One patient whose case was recently studied lived over five years and one lived over nine years in spite of the fact that all of the lymphatic glands were involved. The same was true of cases with partial glandular involvement. The question arising from these facts is: What are the factors controlling longevity in these exceptional cases? Doubtless there are many contributing factors to longevity, but there are at least two which can be studied with a fair degree of accuracy which may be sufficient to advance our knowledge of the body's defensive mechanism against the destructive character and activity of neoplasms.

In this report, cellular differentiation, and lymphocytic infiltration are considered. There is a general unwritten law in biology which indicates that the power of cellular reproduction is in inverse relation to the degree of cellular differentiation unless the differentiation be for the specific purpose of reproduction. By the term differentiation in biology we mean structural change for specific function. For convenience of study the degrees of differentiation have been classified according to the visible changes which can be easily

recognized in the normal evolution of specific tissues. The differentiation has been divided into three degrees as follows: (1) The cells assume the general alignment of the adult tissue but without arrangement of the axes of the cells as in the adult tissue cells; (2) the axes are parallel or form radii of a sphere or circles; and (3) the cells assume the adult morphology of the units of the specific tissue.

The cells of carcinoma sometimes attempt differentiation and it has been thought that this attempt might be seen in the patients who lived unusually long after gastric resection.

The next factor, as a possible part of the defensive mechanism, is lymphocytic infiltration. The degrees of lymphocytic infiltration are arbitrarily fixed as follows: The first degree, no immediate contact of the lymphocytes with the cancer cells, the lymphocytes being discovered after careful search of the microscopic fields; second degree, occasional contact of the lymphocytes with the cancer cells; third degree, extensive contact of the lymphocytes with the cancer cells.

The authors summarize as follows:

The average length of postoperative life is 7.5 per cent greater in cases with differentiation than in those without differentiation.

There is a much greater percentage of cases in Group I (no glandular involvement) without differentiation.

There is a much greater percentage of cases in Group II (involvement of all glands) with differentiation.

The greatest frequency of cases with no differentiation occurs in patients between 29 and 40 years of age. The greatest frequency of cases with the greatest amount of differentiation occurs in patients between 40 and 50 years of age. The average length of postoperative life is greatest in cases with glandular involvement plus lymphocytic infiltration.

The patients without glandular involvement but with lymphocytic infiltration live 124 per cent longer than those without lymphocytic infiltration. Patients with glandular involvement lived 14 per cent longer when there was lymphocytic infiltration than did those with no lymphocytic infiltration. The highest percentage of cases, without lymphocytic infiltration, were those with no glandular involvement; and the highest percentage of cases, with lymphocytic infiltration, were those with glandular involvement.

The highest percentage of cases with marked lymphocytic infil-

tration occurred between 60 and 72 years of age and 40 and 50 years of age; and the highest percentage of cases with no lymphocytic infiltration occurred between 50 and 60 years of age.

The average length of postoperative life in cases with differentiation and lymphocytic infiltration combined is 82 per cent greater than without differentiation and lymphocytic infiltration combined.

C. M. ANDERSON.

NEILSON, C. H., AND WHEELON, H.: **Studies on the Resistance of the Red Blood-cells. II. The Resistance of the Red Blood-cells in Disease to the Hemolytic Action of Sapotoxin.** *The Journal of Laboratory and Clinical Medicine*, June, 1921, vi, No. 9, p. 487.

In a previous communication a rapid method was given for the determination of the resistance of the red blood-cells to sapotoxin solutions. In brief the method consisted of exposing a given amount of whole blood for a period of 5 minutes to various strengths of sapotoxin solution at a constant temperature of 25° C. (77° F.). With this method the red cells of normal whole blood showed an average minimal degree of hemolysis in a 1:13,937 sapotoxin solution. It was also shown that the resistance of washed cells was markedly less than that of those suspended in normal blood fluids. Such results led to the conclusion that the blood fluids acted in such a manner as to protect or raise the resistance of the red blood-cells to the hemolytic action of sapotoxin. The present paper deals with the relation of red cell resistance in various of the common diseases to the hemolytic action of sapotoxin. Brief mention is made concerning the relation of cholesterol to the hemolytic action of sapotoxin inasmuch as the cholesterol content of the blood in certain of the diseases was found to vary in proportion to variations in red cell resistance.

In brief the conclusions were: Pregnancy is associated with an increased resistance of the red cells to sapotoxin. At the time of delivery the red cells show their greatest resistance. Immediately following parturition the resistance begins to diminish and upon the twelfth day has returned toward the normal. Malaria as such does not appear to lower the resistance of the red blood corpuscles. The administration of quinin diminishes the resistance. Nonmalarial

cases fail to show any constant deviation from the normal average resistance either during the taking of quinin or following its withdrawal.

Pulmonary tuberculosis tends to increase the resistance of the red cells. Pregnancy in such cases accentuates the effects of tuberculosis. Tuberculosis complicated with syphilis tends to bring about a depression in the resistance of the red cells. Typhoid fever appears to alter but little the resistance. In syphilis—positive Wassermann—the resistance is less than for the average. The administration of mercury tends to increase the resistance. Lead-poisoning may bring about an increased resistance of the red cells. Jaundice and resistance appear to bear no constant relationship. Obstructive jaundice causes a marked increase; on the other hand, hemolytic jaundice is associated with a marked decrease in the resistance. Anemia associated with lues and hemolytic jaundice show a lessened degree of resistance. The red cells in anemias associated with or caused by carcinoma, tuberculosis, obstructive jaundice and some cases of pernicious anemia show increased resistance toward hemolytic agents.

In cardiorenal diseases, arteriosclerosis is associated with increased resistance. Diabetic coma and uremia show no change. Cases diagnosed as nephritis show no alteration, but cases diagnosed as cardionephritis show a slight reduction of resistance. Malignant growths do not appear to alter the resistance, however early cases of carcinoma show a slightly higher resistance than cases associated with anemia or cachexia. The cholesterol content of the blood seems to run parallel to the degree of resistance of the red cells to sapotoxin solutions. A high cholesterol content of the blood is associated with a high degree of resistance of the red cells when they are surrounded with serum. A low cholesterol content is associated with a reduced resistance of the cells. Therefore, the resistance of the red cells to sapotoxin solutions varies in different diseases and this variation is intimately associated with alterations in the metabolism of cholesterol.

C. M. ANDERSON.

MAGATH, T. B.: *A Test for Early Renal Insufficiency. The Journal of Laboratory and Clinical Medicine*, May, 1921, vi, No. 8, p. 463.

The diagnostic determination of blood uric acid has been de-

veloped and it has been shown quite clearly that there may be an elevated blood uric acid in renal involvement long before the blood urea is above normal, because the kidneys excrete uric acid with the greatest difficulty of any known nonprotein substance. The determination of uric acid is of more value than urea in the early diagnosis of nephritis. It therefore seems logical if a patient were fed uric acid and there was a slight lesion of the kidneys, too small even to give a very marked rise of blood uric acid with a normal diet, that it might be possible to demonstrate an early inability of the kidneys to excrete uric acid and thus determine a possible prenephritic condition. The test was carried out as follows:

The patient was put on a purin free diet (milk) for three days and the amount of uric acid excreted in the urine was determined for the third twenty-four hours. The method of Folin and Wu was used throughout this work. Three-fourths of the weight of the patient was ascertained and calculated for the weight of body fluids. Enough uric acid was given by mouth to cause a rise in blood uric acid of about 2.5 mg. for each 100 c. c., if the patient failed to excrete any of it. This usually meant the administration of about 2 grams (30.86 grains) of pure uric acid. A determination of the uric acid in the blood was then made. The uric acid excreted during the next twenty-four hours was determined; at the end of this time a second blood uric acid determination was made and compared with that made at the time the drug was administered. The results obtained showed that some cases had a decided hypertension of the uric acid with practically no other physical findings. They were interpreted as prenephritic conditions. The uric acid used for these tests was prepared from human urine by the usual method. The commercial product of uric acid was used in other cases with no results, which would indicate that the failure might be due to the fact that the uric acid was not absorbed in the gastro-intestinal tract, at least not as uric acid.

Caffein citrate was used in other cases, and here were obtained calculated rises in the blood or urine according to whether the individual was normal or nephritic. From this it would seem that caffein is excreted as uric acid, or piles up as uric acid in the blood in cases of nephritis or else some other substance is formed that gives a blue color by the Folin and Wu method. The dose used was about

1 gram (15.43 grains) of caffeine citrate in capsules at three one-hour intervals just prior to the ingestion of a meal.

Recently McLean and Wesselow have used a urea concentration test showing that earlier renal involvements may be demonstrated than by a simple urea determination. It remains to be seen whether this test furnishes more information than a single uric acid determination, and certainly from a theoretical standpoint it could not show as early a renal involvement as the proposed uric acid concentration test outlined above.

C. M. ANDERSON.

PRYER, R. W.: **The Etiology of Scarlet Fever. III. The Alkali-Producing Organisms in Scarlet Fever.** *The Journal of Laboratory and Clinical Medicine*, July, 1921, vi, No. 10, p. 561.

A large coccus-shaped organism which in size resembles somewhat a yeast has been isolated from scarlet fever patients and has not as yet been found in other conditions. This organism is characterized by alkali production in all sugars, abundant spore production and typical amin odor. The spores are very resistant to heat, withstanding at least two hours boiling, but are usually killed by a temperature of 110° C. (220° F.) in the autoclave.

The growth of this organism is strictly aërobic, optimum temperature 30° to 40° C. (86° to 104° F.), a spore-producing, alkali-producing, coccus-like organism which will grow on very alkaline media and a medium very deficient in meat or meat products. In a great many respects this organism resembles some of the yeast family, although no budding forms have been observed, and multiplication as far as can be determined is by cell division.

C. M. ANDERSON.

EGGSTON, A. A.: **The Alkali Reserve of Blood-plasma During Acute Anaphylactic Shock.** *The Journal of Laboratory and Clinical Medicine*, July, 1921, vi, No. 10, p. 555.

A decrease of the alkali reserve of blood-plasma of animals during shock resulting from intravenous injection of toxic foreign pro-

teins having been observed, a group of acute anaphylactic experiments was outlined in order to make further observations upon these changes in toxemic shock. The following conclusions were made:

(1) Rabbits are unsatisfactory for the study of changes in the carbon dioxid capacity of the plasma in acute anaphylactic shock, due to the marked normal variations from day to day in the carbon dioxid combining of their plasma and because anaphylaxis in rabbits is very frequently not an acute shock.

(2) Acute anaphylactic shock in dogs is associated with an immediate and progressive acidosis. The acidosis appears before the onset of recognizable clinical symptoms of shock. When the carbon dioxid capacity of the blood-plasma falls below 25 volume per cent the animal usually dies. The acidosis is quickly relieved after shock if the animal survives. The alkali reserve of the blood is restored to normal in less than six hours.

(3) The administration of sodium bicarbonate to dogs before anaphylactic shock has an apparent beneficial influence upon the recovery of the animal. However, it will not always prevent death even though the alkaline reserve of the plasma is restored to normal or above.

Alkaline treatment of guinea pigs preliminary to acute anaphylactic shock reduced the mortality 16.7 per cent in a series of 42 animals treated with relatively large doses of sodium bicarbonate intravenously and a minimum lethal shock dose of the sensitizing protein.

C. M. ANDERSON.

NEILSON, C. H., AND WHEELON, H.: **Studies on the Resistance of the Red Blood-cells. III. The Relation of Cholesterol to the Resistance of the Red Blood-cells to the Hemolytic Action of Sapotoxin.** *The Journal of Laboratory and Clinical Medicine*, July, 1921, vi, No. 10, p. 568.

The authors' work led them to the conclusion that cholesterol is an important element in the protection of the red cells against the hemolytic action of sapotoxin. Because of this conclusion they feel that a chemical examination of the blood for cholesterol is to be greatly preferred to the more laborious and inaccurate task of esti-

inating the red cell resistance to hemolytic agents. Furthermore we would emphasize the fact that resistance determinations are of little clinical value save for the differentiation of the two types of jaundice because of the wide range of variations that occur in many of the common diseases.

In brief their results are as follows: The red cells may be considered as composed of jellies which exist and depend upon their content and peculiar behavior of lipins. The cholesterol, both of the cell itself and about the cell acts as an antihemolytic, while lecithin tends to combine with toxins to form lecithids. Such formations react upon the cell to destroy its composition, thereby liberating the hemoglobin from the stroma. Diseases in which the cholesterol content is high show an increased red cell resistance to sapotoxin solutions; those showing a low cholesterol content also show a lessened degree of resistance to specific hemolytic agents. Hence it may be concluded that the cholesterol of the blood in great part determines the degree of resistance of the red cells to sapotoxin solutions.

C. M. ANDERSON.

CECIL, R. L., AND STEFFEN, G.: I. Studies on Pneumococcus Immunity. Active Immunization of Monkeys against Pneumococcus Type I Pneumonia with Pneumococcus Type I Vaccine. *The Journal of Experimental Medicine*, September 1, 1921, xxxiv, No. 3, p. 245.

Experiments were carried out upon monkeys. These were vaccinated with a highly virulent organism emulsion. Three subcutaneous injections were given at intervals of a week, the first dose consisting of 20 billion, the second of 40 billion and the third of 60 billion. These were later injected intratracheally, as were also controls, with a small quantity of an eighteen-hour broth culture of pneumococcus.

The vaccinated monkeys remained healthy and showed no changes in temperature or leukocyte count. The control monkey developed the signs and symptoms of pneumonia and recovered by crisis on the sixth day. One vaccinated monkey was killed and autopsied and the lungs found normal. The control monkey on autopsy showed a resolving pneumonia of the interstitial type.

The effect of vaccination here was to confer complete protection against the homologous type of pneumonia.

Experiments carried out upon another group of monkeys to determine the value of intravenous vaccination gave very much the same result as above. The vaccinated animals remained free from pneumonia whereas the control developed a definite lobar consolidation.

H. M. FEINBLATT.

NEILSON, C. H., AND WHEELON, H.: **Studies on the Resistance of the Red Blood-cells. I. Resistance of the Red Blood-cells in Health to the Hemolytic Action of Sapotoxin.** *The Journal of Laboratory and Clinical Medicine*, May, 1921, vi, No. 8, p. 454.

The subject of hemolysis has received much attention both from the experimental and clinical aspect. In brief the results of the two types of hemolytic action—osmotic tension and hemolysins—are as follows: Rather wide physiological variations in the isotonic tension of the blood normally occurs. The venous blood usually shows a slightly higher tension than that of the arterial blood. The resistance remains remarkably constant in health but in certain diseases there are found wide variations. Resistance of the red blood-cells to isotonic salt solutions is raised by the addition of hydrogen, nitrogen, arsenic, carbon dioxid, carbon monoxid, and acids, and diminished by traces of alkalis or oxygen. During the course of typhoid fever, pneumonia, erysipelas, and other acute infections the isotonic tension may be increased. The resistance is also increased in leukemia, secondary anemias, pregnancy, lactation, obstructive jaundice and carcimoma. In cases of elevated blood-pressure, hemolytic icterus, fever, chlorosis, pernicious anemia and cyanosis the resistance of the red cells is lowered.

The present work of the authors deals with the action of a specific hemolytic agent, sapotoxin, on the resistance of the normal washed and unwashed red blood-cells. They make their summary as follows:

(1) A rapid method is described for the determination of the degree of the resistance of the red blood-cells to a specific hemolytic agent,—sapotoxin. The average maximal resistance of the cor-

puscles in the whole blood of 99 individuals chosen as normals was a 1:13,769 strength of sapotoxin solution. The average length of time for complete hemolysis to occur in a 1:13,000 solution at a constant temperature—25° C. (77° F.)—was 10.7 minutes. The average hemoglobin as determined by the Tallquist hemoglobinometer was 91 per cent for all cases. Washed corpuscles from 12 normal cases suspended in isotonic salt solution were found to show a minimal degree of hemolysis in a 1:37,375 sapotoxin solution. Findings in luetic, pregnant, and jaundiced cases are also given. Washed corpuscles diluted 1:1 with normal saline solution gave practically a normal count, hence mass action was ruled out because of this dilution. Also, washed corpuscles diluted 1:1 with their own serum demonstrate practically the same resistance against sapotoxin as cells present in whole blood. The red blood-cells normally show a remarkable degree of constancy in their resistance to a specific hemolytic agent.

(2) Therefore, it may be concluded that the presence of the blood fluid about the red cells acts in such a manner as to resist the hemolytic action of sapotoxin.

C. M. ANDERSON.

JENKINS, C. E.: **Notes on the Cultivation of the Gonococcus.** *Journal of Pathology and Bacteriology*, 1921, xxiv, 160-165.

Whole blood agar was used as the medium in this case. The method of preparation is here given. The medium has proved very serviceable. The amount of growth and the shortness of the time required for the colonies to appear after inoculation are alike satisfactory. But at the same time, variation in the behavior of the organisms was observed from time to time, and an attempt was made to standardize the conditions of growth. Three questions were investigated: (1) the optimum temperature, (2) whether moisture was necessary, and (3) the reaction of the agar. As a preliminary to ascertaining the optimum temperature the incubator was examined. It has two metal shelves dividing into three compartments. The thermometer supplied with it fits into the usual hole at the top of the instrument and presumably indicates the temperature of the upper compartment. A large evaporating dish was placed in each of the

compartments and left for 48 hours. It was thus found that the bottom compartment was constantly 1°C . (33.8°F .) below the top one. Six strains of gonococci were used in the tests; five were of recent origin, the sixth had been isolated three months previously. The incubator was first run at 37.5°C . (99.5°F .) without any special provision for keeping the air in it moist. The strains did not develop their colonies at the same time. The earliest appeared at the sixteenth hour, the last at about the forty-eighth hour. The colonies themselves were at first pin-point, and only very slowly increased in diameter and developed their typical crenated edges. They showed a marked tendency to remain discrete, and began to develop the heaped-up, slightly brown centers about the fifth day. A large bowl of water was then placed alongside the cultures and resulted in a somewhat more rapid growth. The disparity in the "appearance time" of the colonies of the different strains was not so marked; the most vigorous appeared at the twelfth hour and the last at the twentieth. This was not surprising as it is widely held that some degree of moisture is necessary for the satisfactory cultivation of the gonococcus. The water-dish was used regularly in the subsequent work. The incubator temperature was next reduced by stages to 36°C . (96.8°F .) nominal and the cultures kept alongside a large dish of water on the bottom shelf, where the true temperature was ascertained to be 35°C . (95°F .). All the strains now developed their colonies at the eighth to tenth hour. Some twenty-five to thirty-six strains have been cultivated, and each strain has been sub-cultured at least half a dozen times. In all cases the colonies have appeared at or before the eleventh hour. The appearance of the individual colonies under these conditions was decidedly different from the accepted description of the gonococcus colony. Films prepared from these cultures showed extremely few degenerative forms at the end of 48 hours in sharp contrast to films grown at 37°C . (98.6°F .) in a dry atmosphere, where swollen cocci were very numerous. The thick grey growth was so unlike what the gonococcus is supposed to be, that the suspicion of contamination naturally arose, but repeated examinations showed nothing but minute Gram-negative diplococci, flattened on their opposed surfaces. The optimum temperature for the growth of the gonococcus is 35° to 36°C . Moisture is necessary and should be provided by keeping the atmosphere saturated, and by using a medium with a high water content. The classical description of the gonococcus colony describes its ap-

pearance on a medium of comparatively low water content. Ten per cent whole blood agar is satisfactory medium. The reaction of the agar from which it is made should be + 4 or + 5. At optimum conditions of temperature and moisture, and when grown on a suitable medium, all strains develop equally; the variations in the amount of growth and in the appearance of the different strains become manifest only when the conditions are made relatively unfavorable.

NUZUM, J. W.: **A Critical Study of an Organism Associated with a Transplantable Carcinoma of the White Mouse.** *Surgery, Gynecology and Obstetrics*, August, 1921, xxxiii, 167.

The "Crocker Fund Carcinoma, No. 11" of Dr. F. C. Wood's laboratory has been transplanted through more than 100 generations of white mice. Its virulence is such that it now yields from 60 to 100 per cent of successful takes under favorable conditions. When inoculated into the loose subcutaneous tissues of the white mouse the tumor grows by expansion rather than infiltration, giving rise to larger encapsulated growths. These ulcerate commonly at the end of 5 to 6 weeks, producing cachexia and death of the animal. Metastases rarely occur when the tumors are inoculated subcutaneously. It would appear that the distinction between benign, expansive and malignant infiltrating growths are not rigidly maintained in transplantable tumors of mice.

The cancer parasite has not yet been found, though a voluminous literature by numerous investigators would show that the search has been far and long.

Peyton Rous has shown that there is a filterable virus in sarcomata of fowls which passes through the Berkefeld filter. This virus resists and produces new tumors after preservation in ice-box for seven months. He found that the cells themselves or this filterable virus would reproduce sarcomata.

Keyser has been able to reproduce human cancer and sarcoma to white mice by fine watery emulsion of human tumor cells into the solid viscera of the mouse. These tumors were subsequently transplanted into new generations of mice, with a steady increase in virulence and percentage of takes. Since tumor cells of man cannot live in the white mouse, the conclusion is reached that cancer cells carry

with them some other agent which incites to carcinoma. He notes that the tumor cells must be taken at their maximum virulence to accomplish this.

The author gives results of some extensive laboratory experiments to find if there is an organism or germ associated with tumor cells, acting possibly as a constant irritant to the cell nuclei. This investigation covered a period of two years, involving several hundred experiments in the special tissue ascitic fluid media. More than 1,200 white mice were inoculated with cultures and tumor tissue. This latter was limited to one kind of mouse tumor. As a result a minute, filterable, Gram-positive micrococcus has been isolated quite constantly from emulsions or pieces of carcinomatous tissue removed under aseptic precautions. The micrococcus presents some difficulty in isolation in the original culture, but subsequent generations effect a more rapid and luxuriant growth when it becomes adapted to artificial media and cultivation. It is produced under partial anaërobic conditions and has been carried to the twelfth generation. The minute microorganism has been seen both in stained sections of early carcinoma, and in contact smears of cancer cells stained by Gram's method. It has never been seen in the control tubes of culture media incubated at the same time. It is present so constantly in this transplantable tumor that it seems to play an important rôle in the propagation of the tumor. It might be assumed that these minute coccid bodies invade the cancer cells, carried along with them, and are acting as a constant irritant to the cell nuclei, causing limitless division and multiplication. Injections of the pure culture subcutaneously in the breast tissues of the mice have "in many instances" reproduced tumor nodules which grew progressively for 10 to 30 days and then slowly retrogressed in the majority of cases. Microscopically these nodules in twenty-four-hour specimen show characteristic cancer tissue.

By stimulating the tumor cells to their maximum degree of virulence, followed by rapid passage through a series of mice of the same stock, a method has been found whereby pure cultures have produced new growths, and histological studies have shown these tumors do not vary from the original growth. Transplants have yielded similar growths in 80 per cent of a series of inoculated mice. The organism has been readily recovered from these experimental tumors.

Inoculations of these germs into tissue adjacent to tumors seems

to stimulate their growth. Control injections of a limited number of staphylococcus albus and aureus, bacillus prodigeosus, and streptococcus hemolyticus into normal mice never have produced growths, and if mixed with cancer cells usually fail to "take".

He makes no claim to have discovered the cause of cancer. But believes it worthy of further observation and experimentation.

In a recent case of excision of cancer of the breast of one of his patients, he took a nodule of cancer tissue, and cultured the material in ascitic fluid tissue media. In each of the four tubes so inoculated there was isolated a pure culture of the organism described above. Since that time he has cultured it also from the cancers of peritoneum, omentum, sigmoid, and a second cancer of the breast.

Further investigation is now being carried on from the clinical cases of cancer found by Dr. A. J. Ochsner in his clinic at the Augustana Hospital, Chicago.

FLANDIN, C., AND VALLERY-RADOT, P.: **Icterogenous Serum Anaphylaxis** (Anaphylaxie serique icterogene). *Bulletins et memoirs de la societe Medicale des Hopital de Paris*, 1921, xxxvii, 1072-1075.

The pathogenic rôle of the liver in anaphylactic accidents has for some time been the object of much search. The relation of hemoral and blood troubles recently brought to light by M. Widal, has emphasized the reciprocal influence which a disequilibrium of the blood and a derangement of the liver function can exercise on each other. But, until the present, hepatic symptoms, chiefly certain jaundices, which one has tried to relate to anaphylaxis may well be interpreted by the direct action on the liver of a toxic or infectious agent, as certain accidents observed in the course of treatment of syphilis by arsenobenzenes. The fact brought out here is that after a reinjection of horse serum urticaria, an ordinary accident and jaundice appeared simultaneously. This jaundice could not be attributed to any other cause and the author is convinced that it can be interpreted as an anaphylactic accident. The patient, male, aged 35, entered the hospital for a chaneriform ulceration of some fifteen days' duration, accompanied by a lymphangitis and a right inguinal bubo not broken down. There was nothing else in his condition worthy of mention. Local treatment having brought about no improvement, a

subcutaneous injection of 20 c. c. of antimeningococcic serum was given, and after puncture and evacuation of pus, an injection of 5 c. c. of the same was made into the bubo. The same day, at the site of the injection and in five or six points of the abdomen several stinging, raised places developed, very itchy, which disappeared in a few hours. The temperature until then normal, rose from 37.2° C. (99° F.) in the morning to 38° C. (100.4° F.) in the evening. Five days after the injection a generalized urticarial eruption made up of large wounds confluent and very itchy appeared. Also an obvious jaundice developed, golden yellow, generalized; the excretions were discolored, the urine was deepened. The pulse of 76 gradually lowered to 52. A slight saburral condition with lack of appetite and dirty tongue appeared. The liver was increased in size, the bladder seemed large and painful, the spleen had a dulness of 6-8 cm. The blood test gave the following:

Red Corpuscles	4,150,000
White Corpuscles	16,000
Polynuclears	62
Large mononuclears	16
Medium mononuclears	5
Lymphocytes	11
Eosinophils	6
Globular resistance between	40 and 32
Arterial tension (Pachon)	15/7.5

This icterus by total retention of the clinical type of mild catarrhal icterus led only to a slight febrile reaction; then the temperature which never exceeded 38° C. (100.4° F.) in the evening became normal on the eighth day of the jaundice. The stools again became colored on the fourteenth day and they with the urine became normal on the twentieth day. The patient left cured on the first of April, twenty-one days from the onset of symptoms. He had, however, in spite of a meat diet, decreased in weight from 69.500 kilograms (186.2 lbs.) to 65 kilograms (174.15 lbs.). The following is the author's interpretation: about three years and a half after having been sensitized by an injection of horse serum (antitetanus serum) without any serious immediate reaction, a man of 35 years, after a second injection of horse serum (antimeningococcic serum) showed anaphylactic accidents characterized by: (1) Cutaneous manifestations—urticaria first at the point of injection, afterward generalized; (2) general

manifestations: slight febrile state, malaise, lack of appetite; and (3) an hepatic reaction, jaundice of total retention. For the purpose of verifying the anaphylactic state of the subject, after the urticaria and the jaundice had commenced, a test of passive anaphylaxis was made on two guinea pigs; injection of 5 c. c. of the patient's serum into the peritoneum; intracarotid injection of 0.5 c. c. of antimeningococcic serum the next day. The test was negative. On the other hand, on March 17th, that is nine days after the beginning of the jaundice, an injection was given the patient under the skin of the arm, of 1-2 c. c. antimeningococcic serum. Only a slight local induration was noted throughout 24 hours without redness, or pruritus, or in fact without a general reaction of any kind. From this double test, it has been concluded that the reactions of shock observed, urticaria and icterus, had desensitized the patient. To summarize, it seemed that to the polymorphism of serum accidents may be added symptoms of hepatic origin; this observation shows the simple fact of jaundice with complete retention, which seems worthy of the name of icterigenous serum anaphylaxis. In the discussion M. Netter was of the opinion that the occurrence of the jaundice was a mere coincidence and that there was no relation of cause and effect. M. Pasteur Vallery Radot did not think it demonstrated that the icterus was of anaphylactic origin. In 1916, he had reported a patient in whom the serum consequences were accompanied by anemia and subicterus. Here the subicterus was explained by an isolsyn in the serum. M. Millian considered this a jaundice of the infectious type complicated by urticaria. He had seen a chancre of auto-inoculation provoke a painful hypertrophy of the liver for three weeks. He is of the opinion that the terms anaphylaxis and colloidoclasia are abused.

HURST, A. F., AND ROWLANDS, R. P.: **Hour-glass Contraction of the Stomach.** *Guy's Hospital Reports*, April, 1921, lxxi, 168.

Eighty-five per cent of the cases occur in women. One case of congenital hour-glass contracture is reported. It is usually due to an ulcer of the lesser curvature of the stomach. Six per cent of the chronic ulcer cases at the Mayo Clinic were of this type. The ulcer is usually deep and produces a spasm of the circular muscular fibers of the affected segment which aid in producing the deformity. About

1 per cent of carcinoma cases produce a contraction of the hour-glass variety.

The symptoms are usually those of chronic ulcer to which are added those of obstruction. The symptoms are intermittent with attacks of copious vomiting (blood in 33 per cent of the cases). There are usually active peristaltic waves. There is achalasia (failure of sphincteric relaxation) if the ulcer is near the cardiac end of the stomach. The diagnosis is usually made by the x-ray. Sometimes the radiographic diagnosis is not confirmed by operation or autopsy. These cases are usually of a functional spasmodic origin. Sometimes a dilated splenic flexure of the colon distended by gas produces a picture of an hour-glass contraction. The reflex contractions produced by chronic appendicitis, gall-stones, and duodenal ulcer usually disappear under large doses of atropin. Carman recommends large doses of belladonna. Spasmodic hour-glass contraction never leads to peristalsis in the proximal segment of the hour-glass. Occasionally gastroptosis with an adherent ulcer of the lesser curvature produces a similar picture.

H. JOACHIM.

SECTION ON PEDIATRICS

WORINGER, P.: **A Case of Fat Diarrhea in a Nursling.** *Le Nourrisson*, Paris, January, 1921, ix, 18-23.

The principal symptom of fat diarrhea is a yellowish gray putty-like stool comprised largely of neutral fat and fatty acids. Some authors deny that fat diarrhea is an entity and that this type of stool may occur in several different conditions. Others conclude that diarrhea is due to a faulty utilization of fat. Woringer reports the cases of twins, one of which had a digestive disturbance on a low fat diet and then continued to have grey fatty stools when his diet was changed to woman's milk. The condition was cured by feeding the infant skimmed woman's milk. Woringer by methods which he describes analyzed the fat intake and output of this child. His findings are expressed in two tables. Fat formed an average of 71 per cent of the dried stool. This was largely in the form of soaps and free fatty acids, only 18 per cent being neutral fat. A normal infant utilizes about 95 per cent of the fat ingested but this patient needed but 75 per cent. Woringer says the term fat diarrhea is incorrect, for this condition may exist without exaggerated peristalsis. He suggests the names stearrhea or fat dyspepsia.

A. T. S. DAVISON.

NAVARRO, J. C.: **Cardio-cirrhosis (Hutinel's or Pick's Disease)—Etiology.** *Archives de Médecine des Enfants*, Paris, April, 1921, xxiv, 201-214.

Clinically, this syndrome is characterized by ascites, enlargement and induration of the liver, occasionally slight cyanosis and dyspnea, absence of heart murmurs, normal size of the heart, rapid pulse, and

a slow and progressive course with remissions. The pathological lesions are serous or adhesive pericarditis, adhesions between the heart and mediastinum, cirrhosis of the liver and perihepatitis. According to the literature, tuberculosis is the most frequent cause with syphilis next in order and scarlet and typhoid fever as more rare etiological factors. Navarro dismisses the claim that rheumatism may produce this syndrome on the ground that in rheumatic infections the heart lesions are of primary importance while in Hutinel's disease the clinical cardiac fractures are often so minor as to be overlooked. He reports two typical cases in children in one of which syphilis alone appears to have been the cause and in the other syphilis and tuberculosis. In the first instance, although the Wassermann was negative, the patient had a perforation of the nasal septum, Hutchinson's teeth and his mother had three miscarriages. Tuberculosis was eliminated by three negative tuberculin reactions. In the second case, the Wassermann was positive. At autopsy there were tuberculous pericarditis with complete adhesions of the pericardium, cirrhosis of the liver and gelatinous degeneration of the peritoneum.

W. C. DAVISON.

MARFAN, A. B.: **The States of Malnutrition in Early Infancy,—Hypothrepsia and Athrepsia.** *Le Nourrison*, Paris, January and March, 1921, ix, 1-17 and 65-86.

Malnutrition is frequent in infants for their energy requirements are higher than those of adults because of the proportionately greater body surface, heat production and growth. Malnutrition and failure to gain in weight and stature are entirely different for the former is manifest only by the loss of subcutaneous fat. The condition has been mentioned by ancient physicians and was clearly described by Mercuriali, an Italian, in 1853. Athrepsia is a better term than atrophy for the extreme type of malnutrition as the latter has too general an application. Hypothrepsia signifies the milder forms. There are three groups of causes of malnutrition: (1) Faulty or insufficient feeding; (2) affections of the digestive tract; and (3) infectious diseases, especially chronic ones. These primary causes are often added by congenital defects, extreme temperatures, bad hygienic surroundings, and lack of care. A breast-fed infant may

not receive sufficient food because of congenital debility, malformations of the mouth, or of the mother's nipples, poor secretion of milk or habitual vomiting. If artificially fed, the calories per kilogram of weight may be too low. If the food is less than 50 calories per kilo, the course of the malnutrition is rapid. The administration of water for a time prevents the effects of underfeeding. In artificially fed infants under four months of age, malnutrition quickly develops into athrepsia and death results. The food of an infant who has been underfed must be increased slowly and carefully to prevent digestive upsets. Malnutrition following insufficient food is essentially the same as that following disturbances of digestion. Malnutrition occurs very rarely without a preceding digestive disturbance but when it does, it practically never goes on to athrepsia. Digestive troubles are the most frequent causes. Hypothrepsia may occur in breast-fed babies but athrepsia develops only in those artificially fed. Congenital syphilis is often responsible for malnutrition. The majority of luetic infants with hypothrepsia or athrepsia have had digestive disturbances. Hospital régime is conducive to hypothrepsia.

The extent of the loss of the subcutaneous fat is an index of the degree of malnutrition. The adipose tissue disappears usually first from the abdomen (first degree of hypothrepsia), then from the trunk (second degree of hypothrepsia), next from the extremities, and finally from the face (athrepsia). In the *first degree of hypothrepsia*, the weight is usually stationary and the temperature normal. If the cause can be eradicated and sufficient and proper food given, the condition will improve. Progress may be slow for a long time and then the weight may increase rapidly. The younger the infant the worse the prognosis. If the infant is younger than four months, athrepsia is always to be feared. In the *second grade of hypothrepsia*, the weight decreases, although the body length may increase. The temperature may oscillate one or two degrees a day. Unless the baby has rickets, the muscles are hypertonic. The fontanelle is depressed and the extremities are cyanotic. *Athrepsia* in an infant under four months of age is practically always incurable. The weight decreases rapidly, except toward the end when edema may appear due to salt retention. The body length is stationary. The temperature is usually low and very unstable, reacting to the external temperature. Frequently an intercurrent in-

fection will cause but little fever. As death approaches, the respiration may acquire a Cheyne-Stokes' rhythm, the nervous system becomes torpid, the appetite fails and signs of great dehydration appear. Death usually follows 10 or 15 days after athrepsia is clearly established. It is claimed that death occurs when an infant has lost one-third of his previous maximum weight. When the temperature is persistently low, the skin may become indurated and the condition of sclerema result. Marfan has seen only 3 babies recover from athrepsia.

In the second grade of hypothrepsia there is a large amount of neutral fat in the stools. Normal infants utilize from 90 to 96 per cent of the fat ingested while hypothreptic babies use but from 80 to 86 per cent. The stools of all infants, whether normal or malnourished do not contain sugar provided there is no diarrhea. The stools of athreptic babies contain an excess of protein and minerals. Bile pigments may be absent in the feces of malnourished infants. Some authors have found that the walls of the gastro-intestinal tract are permeable to undigested protein. The urine of infants suffering from malnutrition often, though not always, contains an excess of chlorids, phosphates, urea, uric acid and urates. During the last stages of athrepsia, anuria may develop, due to an urate infarct in the kidneys. Glycuronic acid, a constituent of normal urine, is absent in malnutrition. In hypothrepsia there is a simple anemia but in athrepsia due to the dehydration the red blood-cell count is above the normal. The ketone bodies are not increased in malnutrition. In hypothrepsia there is an excessive destruction of fat and later in athrepsia, demineralization and dehydration appear and perhaps an excessive production of urea. The autopsy of a case of athrepsia demonstrates an almost complete loss of adipose tissue as well as fat and lipoids from the liver. Most of the organs are dehydrated.

(To be continued).

A. T. S. DAVISON.

SIEGEL, A. E.: **Pulmonary Tuberculosis in Young Children.** *New York Medical Journal*, Aug. 17, 1921, cxiv, No. 4. p. 223.

Statistics of tuberculosis in children show that incidence is high, averaging from 30 per cent to 50 per cent of lesions found post-

mortem. Bradley (*Penna. Med. Jour.*, Feb., 1921) says that during 1919, 2,207 deaths occurred from tuberculosis in Pennsylvania in persons under nineteen years of age; of these 515 were in Philadelphia. These were not autopsy findings, but were determined on clinical diagnosis. Thus they may be only a part of the entire number in which tuberculosis was present.

Cooke and Hemplemann (*Am. Rev. of Tuberculosis*, November, 1920) describe a separate type of masked juvenile tuberculosis, sufficiently destructive to warrant a place in classification of tuberculous affections,—history of frequent coughs and colds, unexplained fevers, anorexia, loss of weight and asthenia, and apathy: examination showed more or less malnutrition, anemia, manifestations showing involved tracheobronchial nodes, variations of signs usually found over the normal lung, phlyctenular disease or tuberculids, positive von Pirquet test, as well as the nitrocutaneous tests. Seventy-four per cent of children past fifth year give positive complement-fixation tests for tuberculosis. Routine examinations of all children in childrens' clinic of the Samaritan Hospital show frequent incidence of incipient, masked and frank juvenile tuberculosis. Of the former type treatment will show prompt improvement with but simple hygienic and dietetic care in the great majority of cases. These results are so constant as to emphasize the importance of early recognition. In children of that age the x-rays often reveal unsuspected lesions in lung tissue and as well involvement at the hilus of the lymph-glands. Care and observation must be practiced in these cases even past the years of adolescence and well into adult life.

COMBY, J.: **General Review of Medical Treatment of Pyloric Stenosis in Infants.** *Archives de Médecine des Enfants*, Paris, April, 1921, xxiv, 244-247.

Thomson's statistics based on 100 of his own observations during the past 25 years demonstrate that 83 per cent of the patients were boys. He believes the stenosis to be of nervous and spasmodic origin, contrary to Hirschsprung and Cautley, who maintain that an hypertrophy of the pyloric muscles is the primary lesion. For ordinary cases (vomiting between the second and fourth weeks and sometimes between the sixth and eighth weeks) Thomson advocates giving 2

ounces of skimmed milk every 2 or 3 hours and lavaging the stomach with hot water twice a day. He has found no benefit from hot compresses to the epigastrium nor from opiates and belladonna. In severe cases (infants in collapse, with dilatation and catarrh of the stomach and athrepsia), he prescribes subcutaneous injections and lavages with normal saline. If the patient does not improve in 2 or 3 weeks, a surgeon should be called in. In the acute cases (uncontrollable vomiting with a pyloric tumor) an operation should be done at once. When there is no true stenosis but only spasm of the pylorus and stomach, a half drop of tincture of opium, 2 or 3 times a day is recommended. Thomson does not mention thick cereals nor the Fredet-Rammstedt operation. Jobin advises the administration of 1 drop of 1-1000 solution of atropin sulphate at each feeding, increasing the dose by 1 drop each day up to 5 or 6 drops unless signs of intoxication appear (vasodilatation, mydriasis, fever and dryness of the mucous membranes). In some instances the feeding of thick cereals as warm as possible will succeed better than the giving of atropin. Sauer and Langley Porter have reported good results with thick cereals. If the patient has a coincident diarrhea, rice flour is the cereal of choice. If medical treatment does not control the vomiting, the Fredet-Rammstedt pylorotomy should be performed. Fredet himself does a gastro-enterostomy in patients with pyloric tumors.

W. C. DAVISON.

REWALT, R. K. Vaccine Treatment of Pertussis. *Pennsylvania Medical Journal*, March, 1921, xxiv, 404.

In 130 cases of pertussis where vaccine was used, the straight vaccine, i. e., the one consisting of Bordet bacillus alone, was the one of choice. A mixed vaccine containing the Bordet bacillus, the pneumococcus, the streptococcus and the staphylococcus was used in some cases, chiefly the ones complicated by, or following pneumonia.

The author's youngest case was a breast fed infant of seven weeks. His oldest, a boy of ten years. In the earlier cases treated the results were not so good, nor so striking as in the later cases. He believes this to be due to the fact that the doses were too small. One child treated by pertussis vaccine in November, 1913, whooped and

vomited for five months, notwithstanding fifteen injections. Drugs were also resorted to without effect. This child belonged to the exudative diathesis group, which may have had some significance in prolonging the disease. In a total of six cases the treatment was an absolute failure. In 45 cases benefit of more or less degree was obtained. The other 79 cases showed marked improvement.

Doses of 50 million to 100 million bacilli as advocated by some observers are entirely too small. In infants an initial dose of 250 million to 500 million was used and this was increased to 1 billion or more as the symptoms demanded. From three to eight doses were given at intervals of 48 to 72 hours. More than eight doses were not considered necessary. In older children an initial dose of 500 million was given and each succeeding dose was doubled as was deemed necessary. In other words, if after the second dose of 1 billion or the third dose of 2 million there seemed to be improvement, the succeeding doses were held at that figure. If no improvement was noted, the larger doses were given.

Occasionally a reaction was noted by a temporary rise in temperature or increase in paroxysms. No reaction lasted over 24 hours. The author is aware of no contra-indication.

The vaccines used were all of the stock variety, being obtained from the various manufacturers. No autogenous vaccines were used in any of these cases. Freeman advocates the use of fresh stock vaccines, arguing that they deteriorate within two or three weeks.

The author draws the following conclusion: The vaccine treatment of pertussis is the most valuable treatment at the present time, regardless of its failures; no definite promise of a rapid cure should be made, because as yet there is much to be learned concerning this treatment; larger doses and shorter intervals should be employed; in the majority of cases, the symptoms are made lighter and the course of the disease is materially shortened. A decided effort should be made to use fresh vaccines in treatment of pertussis.

VEAU, V., AND RUPPE, C.: **A Case of Median Superior Hare Lip.**
Archives de Médecine des Enfants, Paris, April, 1921, xxiv, 241-243.

The skin of the upper lip was not divided but the underlying tissues were very much thinned. The junction of the mucosa and

skin was drawn back by a frenum originating from a tubercle on the hard palate. Cutting the frenum, excising the excess mucosa and drawing the muscles of the upper lip together, gave a perfect esthetic result.

W. C. DAVISON.

D'ESPINE, A.: **Two Cases of Gallop Rhythm in Young Children Without Renal Lesions.** *Archives de Medicine des Enfants*, Paris, April, 1921, xxiv, 237-240.

The first patient was a boy three and half years in whom a recent endocarditis was superimposed on a heart already damaged by rheumatism. The myocardium of the left ventricle was very much weakened, giving rise to a gallop rhythm without the usual systolic murmur of mitral insufficiency. There was enlargement of the liver, frequent vomiting, orthopnea, tachycardia, scanty urine, without albumin, but no edema. The child died 5 days after admission to the clinic. The autopsy demonstrated a fresh endocarditis and hyperemia of the liver and kidneys. The second case was similar except for a faint trace of albumin in the urine. However under digitalis therapy, the urine became more abundant, the liver regressed in size and the gallop rhythm almost disappeared. Twelve days later there was a recurrence which also subsided. A third attack some time later was fatal.

W. C. DAVISON.

STILL, G. F.: **On Chronic Intussusception in Children.** *Archives of Pediatrics*, 1921, xxxviii, 174.

Four cases are reported. The term "chronic" is here used to mean cases in which the intussusception is present for many days or even weeks without producing any acute obstruction. The first patient, a boy aged 14 months, vomited and appeared to have pain in the abdomen. From that time he began to lose flesh, and constipation became troublesome, necessitating the use of aperients. After four weeks, occasional vomiting occurred. There was never any blood passed from the bowel. The child was sent to a consultant

who felt a transverse mass below the liver on the right side and diagnosed tubercular peritonitis. The tumor, however, had a somewhat nodular bulbous beginning on the right side and a more smoothly rounded continuation as far as the midline of the epigastrium or just beyond this. It varied in hardness during palpation as if undergoing some active contraction. Moreover, the right iliac fossa seemed unduly empty. The author for these reasons diagnosed intussusception. Tubercular peritonitis was diagnosed in three out of the four cases before the correct one of intussusception. In all these cases one point was against a diagnosis of tubercular peritonitis, namely the very definite sudden onset. In all 4 cases, the parents could tell the exact day on which the child was taken ill, and in some, even the time of day. The author recommends examination of the child during sleep if there is any resentment to the examination. The bismuth meal does not aid in diagnosis, for in one of these cases the intussusception was ileocecal; in one it was ileocolic. In all there was great swelling and congestion of the wall of the intussuscepted bowel, and in 2, the long duration had allowed the formation of some fibrous adhesions between the adjoining mesentery and the bowel.

GOWRING, B. W. Measles, Intussusception and Appendicectomy in a Baby Seven Months Old. *British Medical Journal*, 1921, 1, 495.

On admission the patient was a well-nourished child thickly covered with the rash of measles. A hard mass could readily be felt to the left of the umbilicus. Under an anesthetic an incision 2 inches long was made over the swelling. A finger could follow the swelling toward the left iliac fossa, and after a little manipulation that portion of the descending colon containing the apex of the intussusception was reduced with surprising ease. As each portion of the bowel involved was dealt with it was returned into the abdominal cavity until the ileocecal valve was reached. The appendix abnormally long, was for half its distal portion very dark in appearance—almost gangrenous—this apparently being due to its blood supply having been cut off. The appendix was removed. It was fortunate that the cecum and appendix could be pulled into a wound to the left of the umbilicus.

RICHARD, P.: **Diagnosis and Treatment of the Pretuberculous State in Infants.** *Archives de Médecine des Enfants*, Paris, April, 1921, xxiv, 215-236.

Many children who have received an improper diet and who are susceptible to various minor diseases and who are under-developed physically may be spoken of as pretuberculous for they are easy victims to infection with the Koch bacillus. Pignet's coefficient is a good index of this state. He found that the height minus the sum of the circumference of the chest and the weight (in centimeters and kilograms) rose gradually from 20 at the age of two years to 43 at the age of 14 years. Children predisposed to tuberculosis usually had a coefficient too high for their age. The common skin diseases, cranial and facial malformations, nose and throat infections, enlarged glands, scoliosis, deformities of the shoulders and joints, functional gastrointestinal disturbance, tachycardia, arterial hypotension, increased viscosity of the blood, and insufficiency of the digestive and endocrine glands are frequently noted in the pretuberculous and their presence should suggest the diagnosis of this state. Sabourin reported that children predisposed to tuberculosis often had areas that were painful on pressure on the back over both apices. Ronchi and slight pleural friction rubs may sometimes be detected there. Râles limited to the region between the spine and the upper third of the scapulae are indicative of enlarged tracheobronchial glands. In the pretuberculous the mobility of the thorax during respiration is limited. The expectoration is scanty. X-rays of the thorax are valuable aids toward diagnosis.

Treatment.—Children predisposed to tuberculosis should be outdoors as much as possible during the day and should take exercise that does not fatigue them. School hours should be limited. Tutoring at home is preferable. The bed rooms should be airy with no draughts. Baths twice a week containing either table salt, 500 grains, sodium carbonate, 50 grams, and starch, 125 grams, or table salt, 500 grams, sodium carbonate, 100 grams and sodium bromid, 10 grams, are advisable. A bath to which 2 or 3 liters (4.3 or 6.4 pints) of a watery decoction of 250 grams of oak leaves (tannin) have been added is excellent. The patient should be rubbed after one of these baths with a liniment, either Baume de Fioravanti, 55 grams, alcohol de Genievre, 55 grams and tincture of Nux vomica,

10 grams; or glycerin, 20 grams, tincture of iodin, 20 grams and guaiacol, 6 grams, or cod-liver oil, 100 grams, and guaiacol, 6 grams. Clothing should not be too heavy and should not interfere with activity. Light calisthenics in the supine position, breathing exercises and correct posture should be prescribed. The diet should not contain coffee, spices and salads. The amount of milk must not be excessive. The patient must not be overfed. Richard suggests the following menu:—

8 A. M.	Vegetable soup or cereal. 1 cup of chocolate.
10 A. M. (If desired)	1 cup of chocolate. 1 slice of bread.
12 M.	Eggs, meat or fish. Green vegetable or soup. Bread butter and jam or honey.
4 P. M.	1 cup of tea.
7 P. M.	Vegetable soup. Eggs or meat. Vegetables. Bread butter and jam or honey.

The children should live in the country sheltered from harsh winds, in the mountains, or at the seashore. The following drug régime is recommended and should be repeated. For the first 10 days, 1 dessert to 1 soup-spoon, according to age, twice a day before meals, of the syrup of tannic phosphated iodin; for the second 10 days, two coffee or dessert spoons of a mixture containing syrup of quinin, 120 grams, and sodium arsenate, 0.02 grams; for the third 10 days either,

Calcii triphosphatis	grams 0.3 —0.5
Calcii carbonatis	grams 0.19—0.3
Sodii chloridi	grams 0.09—0.15
Magnesii calcinatis	grams 0.06—0.1
Make 10 powders.	

Sig.—One powder in a half glass of water twice a day before meals.

or

Calcii triphosphatis	grams 0.3—0.5
Calcii carbonatis	grams 0.3—0.5
Calcii fluoridi	grams 0.0005—0.001

Make 10 powders.

Sig.—One powder twice a day in a half glass of water before meals.

For the fourth 10 days, from 2 to 4 coffee spoons daily of calcium iodid, 6 grams, lime water, 50 grams, peppermint water, 100 grams; for the fifth 10 days, 2 dessert to 2 tablespoonfuls daily before meals of the syrup of the iodid of iron. If the child has no diarrhea or nausea he may also be given cod-liver oil, 100 grams, syrup of quinin, 100 grams, Garus' elixir, 15 grams. To children with scrofula or enlarged glands, an ampule of 2 c. c. of "colloidal iodine" may be given once every 2 to 3 months subcutaneously. If the patient has congestion of the liver, one of the following powders may be prescribed daily in a small amount of milk,—vaporized calomel, 0.35 grams, lactose, 10 grams, divided into 7 powders. Small doses of strychnin may increase the appetite. For girls at the time of puberty the following prescriptions are useful: either

Ferri potassii tartratis	grams 0.1
Extracti quinin	grams 0.1
Powdered rhubarb	grams 0.05
Magnesii calcinatis	grams 0.05

Make 40 pills.

Sig.—4 pills daily during meals.

or

Calcii carbonatis	grams 0.5
Calcii triphosphatis	grams 0.5
Ferri protoxalatis	grams 0.01

Make 20 pills.

Sig.—2 pills daily.

Richard also recommends the administration of small doses of dried hypophyseal and suprarenal glands daily for 20 days. This course may be repeated after a rest of one month. He also suggests twelve injections at two-day intervals of 2 c. c. of a solution containing 0.05 grams of glycogen.

W. C. DAVISON.

SECTION ON ROENTGENOLOGY AND ELECTRO- THERAPEUTICS

JAPIOT AND BUSSY: **Radiotherapy in Interstitial Keratitis** (*La radiothérapie dans la keratite interstitielle*). *Journal de radiologie et d'electrologie*, 1921, v, 106.

The authors have used irradiations for more than a year in the treatment of interstitial keratitis. This affection consists, at least at the beginning of a simple infiltration, of the young and mobile connective cells, then very radio-sensitive, in the layers of the cornea, without destruction of these layers. It is an affection which lasts from six months to two years. In the first case, instillations of atropin once a day were prescribed with hot compresses twice a day. Then the irradiation was begun. Two dangers must be avoided in using x-ray in the treatment of keratitis: first the injurious action of the rays on the eye and particularly in the eye in development, and the injurious action on the skin and on the surrounding parts. In both cases the children seem to have inherited syphilis. Weak doses of penetrating rays are found to have the following advantages, the necessary protection of the skin and eyelashes. Short sessions and weak doses should be used.

WARE, J. G.: **Hirschsprung's Disease**. *American Journal of Roentgenology*, April, 1921, viii, 186.

The patient was a girl of eight; her father is syphilitic and mother tubercular. At the age of 7 months the patient began to have attacks of constipation, lasting for several days at a time. Her parents then observed that patient's abdomen had begun to distend, and for the following three years she had only two stools a week. During one prolonged attack of constipation, the patient went into a

state of coma, which lasted three days. During this time she had involuntary liquid stools. Drastic cathartics were administered and patient regained consciousness. For the past three years the child has been given prune juice and various fruits in addition to her regular diet, which has regulated her bowel action fairly well. Recently, however, the attacks of constipation have become more severe, lasting from a week to ten days. She complains of nausea at times but does not vomit. The patient has no desire to play or exert herself in any way, as it tends to bring on cardiac distress. She has not lost any weight. She appears to be intelligent, and keeps up well with her schoolmates in her studies. The examination showed the child to be normal except for a uniformly distended abdomen. A palpable mass could be indistinctly outlined on the left side. The patient did not complain of any pain or distress at the time of examination. She was put to bed and an attempt made to clean out the intestinal tract. Quantities of fecal matter were passed following the administration of cathartics and enemas. The x-ray showed the stomach to be somewhat distended for a child of this age. Peristalsis was very inactive. No filling defects were noted. The cap was visualized. The duodenum appeared to be distended with gas. Plates made soon after the ingestion of the meal showed similar findings. Six-hour plates showed considerable gastric residue, only a small portion of the meal having passed into the small intestine which was crowded over to the left of the median line. Twenty-four-hour plates showed a large residue in the cecum, the ascending and transverse portion of the colon being well outlined. The transverse colon was deep in the pelvis. One week later the patient was again fluoroscoped, and a small cecal retention was observed. After an enema of 180 grams of barium in 1,000 c. c. water, the plates showed the sigmoid and descending colon to be greatly distended, forming a pouch-like mass which filled the greater part of the pelvis and left abdomen. The case was diagnosed as Hirschsprung's disease and operated upon. Through a left rectus incision a greatly dilated and thickened descending colon and sigmoid were delivered. Owing to the fact that the dilation extended into the rectum it was found impossible to perform an end to end anastomosis. The distal third of the descending colon, together with the sigmoid and proximal end of the rectum, was resected. This portion of the intestine contained approximately two quarts of liquid feces. The colon and rectum were closed by infolding, and a lateral anastomosis made between the two

tree ends by means of an oblong Murphy button. The patient's condition was excellent until the ninth day when she developed peritonitis and died.

LANE, C. G.: **The X-ray in Dermatology.** *The American Journal of Roentgenology*, August, 1921, viii, No. 8, p. 476.

The author summarizes as follows: X-ray treatment is invaluable in the treatment of ring-worm, epithelioma, certain lichenified eczemas, mycosis fungoides, blastomycosis, many eczemas, and many of the itching dermatoses.

It should give good results in a certain number of the cases of acne, acne keloid, tuberculosis of the skin, favus keloid, certain cases of parasitic skin diseases, hyperhidrosis, and psoriasis.

KING, C. S.: **Sigmoid Impaction - Its Significance, Pathology and Treatment** (Discussion Following Morse, F. H.). *American Journal of Electrotherapeutics and Radiology*, February, 1921, xxxix, No. 2, p. 70.

The author uses Dr. Morse's technic and apparatus in her office; she has other sinusoidal apparatus, but finds that Dr. Morse's sinusoidal machine gives best current for colon sigmoid. When the patient is subject to cramps, she uses superficial heat from lamps. One may also use large Morse electrodes under sacrum and one over the transverse colon as hot as can be borne, to give as wide range of current action as possible, letting the Morse sine wave generator work for about five minutes to synchronize the peristaltic waves; the colon irrigation can then begin and all will go smoothly. If given while current is passing, patient can take more water than if current stops.

Use an Albright table, dorsal decubitus, rectal tube of hard rubber, 3 inch, with bulbous tip. By raising hips one does not need rectal tube. Use three or four pints of mild castile soap solution and the Morse sine current throughout.

After colon irrigation, the patient takes the knee-chest position, and a dram or two of 25 per cent argyrol solution is injected into the rectum; then with patient prone give galvanism through the pelvis, negative pad under sacrum, positive low down over pelvic abdomen, with current of 12 milliamperes for 20 minutes. Rapid improvement of neurasthenic cases are seen from the first treatment.

GROVER, CHRISTIE AND MERRITT: **The Present Status of Roentgen and Radium Treatment of Cancer of the Breast.** *The Journal of Radiology*, September, 1921, ii, No. 8, p. 39.

Radical surgical treatment alone is able to save the lives of one in about every four operated upon. The probability of success is greatly lessened when the axillary or supraclavicular nodes are involved, when the tumor is adherent to the chest wall, when there is ulceration, and when the patient is below 30 years of age. On the debit side of the account must be placed the deplorable results, following local recurrence, pain, edema of the arm. There seems to be no doubt that operation not only increases the suffering but it also shortens the life of the majority of recurrent cases.

The radiation of inoperable cases has been gratifying. The authors speculate in this connection as to what might be accomplished in a series of more favorable cases by radiotherapy alone.

The radiation of recurrent metastases and postoperative cases has been disappointing.

The authors suggest preoperative radiotherapy, followed by operation six or eight weeks after instituting roentgen treatment.

They think the following advantages will accrue:

- (1) There will be less cancerous tissue to remove.
- (2) The danger of local operative implants will be lessened.
- (3) The danger of cancer dissemination incident to the handling of the tumor and traumatization of the tissues will be restricted.
- (4) A considerable number of inoperable and border-line cases will become definitely operable.
- (5) The axillary region can be treated efficiently before operation, whereas this is seldom practical after operation, because of the restricted mobility of the arm.

The following technic is used:

Milliamperes, 5; spark-gaps, 9 to 10 inches; filtration, $\frac{1}{2}$ millimeter copper and 1 millimeter aluminum; skin focus distance, 12 inches; time for each area, 3 hours.

Breast cases have been treated over from 2 to 4 areas, depending upon circumstances. This makes an exposure time of from 6 to 12 hours. The authors believe that one such treatment followed by operation in from 4 to 6 weeks, if the case is operable, probably affords the best chance of cure.

SHIPLEY, P. G., PEARSON, J. W., WEECH, A. A., AND GREENE, C. H.:
X-ray Pictures of the Bones in the Diagnosis of Syphilis in the Fetus and in Young Infants. *Bulletins of Johns Hopkins Hospital*, March, 1921, xxxii, 75.

The diagnosis of lues in the newly born or very young child is not by any means always easy, since clinical symptoms of the disease may be, and in fact are usually, entirely absent from the child until several weeks after birth. Moreover, a mother without a single clinical manifestation or any serological indication of spirochætal infection may give birth to a luetic infant.

Every syphilitic infant does not show bone lesions on x-ray examination, but cases are not infrequent among young children in which roentgenography discloses evidences of lues when no clinical or serological data are available for diagnosing the presence of the infection. The authors' experience has led them to believe that routine examination of the osseous system in newly born children will yield valuable diagnostic data and insure recognition of the presence of a hereditary infection in a certain number of children who otherwise might go unaided for several months before some clinical symptom or the accidental discovery of a positive serum reaction would secure for them the much-needed therapy.

We have had the opportunity of examining some 300 white fetuses ranging in age from the sixth month of intrauterine life to nearly term with the object of securing as many variations as possible of the normal and pathological skeletal x-ray pictures. The fetuses were of white parentage and were listed as normal in the catalogue of the Carnegie Institute of Embryology. The examination of the plates taken of these specimens furnished a striking demonstration of the terrible toll claimed by syphilis during intrauterine life.

Out of the first 100 plates studied representing the same number of white male fetuses, 15 showed advanced luetic osteochondritis, 10 had signs of less marked syphilitic involvement and 21 showed one or more bones which presented slight variations from the normal picture and were noted as suspicious, the skeletons of 25 per cent had marked signs of lues and 46 out of the first 100 bodies examined had well-marked or suspicious lesions. The syphilitic lesions seen in the bones of children are roughly of two types, those seen in the newly

born and young infants, and those which characterize syphilis of the osseous system of older children. We shall not attempt to discuss here those of the latter variety and, since those which it is necessary to recognize in infants and newly born children are essentially of the fetal type, a detailed knowledge of the lesions encountered in the fetus is most important in the routine use of the x-ray picture as a diagnostic method.

If one examines an x-ray picture of a normal fetus or newly born child, it will be seen at once that the shadow cast by the diaphysis is sharply outlined, the epiphyseal cartilage is invisible, since its density is approximately equal to that of the surrounding soft parts. The cortex of the shaft which is usually of unequal width according to the curvature of the bone, is thickest at the plane of entrance of the nutrient canal and from this point it tapers in either direction to hairline thinness at the epiphyseo-diaphyseal junction. In the central canal of the bone the marrow space is very small and one sees the spongiosa made up of sharply cut, fine, regularly ordered trabeculae arranged in the form of a framework for the homogeneous marrow spaces about the circulatory system of the bone. The nutrient canal through which the blood-vessels enter the bone, is easily made out and can be seen to divide into two branches just beneath the cortex. The bony trabeculae become finer and finer as the epiphyseo-diaphyseal junction is approached and end abruptly in a more or less curved, or straight, but always clear-cut line which is so sharply drawn as to appear to be ruled. They may terminate in a fine granular line running at right angles to their long axes (the calcified intracellular substance of the epiphyseal cartilage), but usually the individual trabecula may be distinguished throughout its entire length.

Syphilitic bones throw quite a different and characteristic shadow on the photographic plate after exposure to the x-ray. Usually all the bones are not affected to the same extent and some of them have apparently escaped entirely. Those which are most often or most severely affected are in order of frequency the lower end of the femur, the distal and proximal ends of the tibia, the distal ends of the radius and ulna, the extremities of the metacarpals, the proximal ends of the phalanges, and the proximal ends of the ulna and radius. No bones are exempt from the syphilitic changes; even the bodies and processes of the vertebrae, the ribs and the bones of the skull do not escape.

The shadows resulting from syphilitic lesion in early life are due to vagaries in the calcification of the provisional cartilage and to the abnormal arrangement and distribution of osseous tissue. The syphilitic changes in the bones of the fetus do not involve the periosteum to any extent but are confined to the epiphyseo-diaphyseal region. In the fetal type of reaction the periosteal lesion is secondary in importance to the endochondral defect. After birth the periosteal reaction begins and in young infants this may be the most marked skeletal lesion.

The beginning of the process as shown by the x-ray picture is an intensification of the shadow cast by the bone at the epiphyseal line. This line becomes broader and more homogeneous and seems to form a cap on the ends of the trabeculae of the spongiosa. This is significant of the beginning of abnormally heavy calcification of the provisional calcified zone. It must be remembered that while the provisional zone of calcification in the cartilage of the normal embryonic bone is very narrow, in many cases only one or two cells deep, in the syphilitic bone the calcified cartilage may show on section a width of from 0.5 mm. to 1.5 mm.

In other bones in which the osteochondritis is further advanced, it can be seen that on the marrow side of the intensified shadow of the provisional zone there is a band-like area where the shadow is less intense, giving an appearance of diminished density to the region of the epiphyseal line.

Bones may also be seen in which the dense shadow and the fine clearer band between grow wider and their surfaces become irregular and jagged until the end of the bone has an irregular, ragged appearance. During the course of the disease the calcification of the infected areas is not only abnormally heavy but most irregular, so that the epiphyseal border of the shadow cast by the bone has a notched, or senated appearance.

Practically all of the bones are involved by the luetic process. About the various centers of ossification in the different bones of the body the syphilitic picture is beautifully drawn. The nucleus becomes surrounded by a very wide zone and eventually becomes doubly contoured by the development of a pericentral ring of tissue which casts but little shadow.

The phalanges, metacarpals and metatarsals give characteristic picture of luetic osteochondritis and are affected by the spirochaeta with regularity and to a very marked degree.

Periostitis when it occurs near term in the severe cases of lues may be present throughout the length of the bone or only at the extremities. One other feature of these pictures is that in many luetic bones the cortex is separated from the spongiosa by a narrow clear zone which gives the cone of spongy bone the appearance of being suspended unattached within the cortical cavity.

With these facts in mind it will be seen that osteal syphilis may be easily recognized in the fetus and that x-ray studies may be a valuable aid in the early diagnosis of hereditary lues.

These cases illustrate the value of the procedure:

I. Colored, female, age 5 weeks, did not use the right arm well. No signs of syphilitic infection and no history to suggest hereditary lues. Wassermann was negative, but x-ray picture of the bones of the forearm showed a slight degree of periostitis and a well-marked syphilitic osteochondritis of the radius and ulna. Diagnosis: syphilis, hereditary, early (epiphysitis).

II. White, female, age 6 weeks, had a slightly swollen wrist-joint. No syphilitic history and no signs of the disease. Repeated Wassermann tests were negative but the x-ray plate of the wrist showed a syphilitic osteochondritis with an intense grade of resorption behind the epiphysis. Antisyphilitic medication was given and the family kept under observation. A Wassermann reaction was done in duplicate in two different laboratories, of both the parents; negative report on paternal serum. Mother's was twice returned by one laboratory as positive and twice negative by the other. The child is still under treatment and shows a marked improvement.

III. White, female, age 2 months, with a diagnosis of hypertrophic stenosis of the pylorus. Examination was negative except for a somewhat enlarged spleen and a swollen ankle. Wassermann was negative 3 times. Mother's Wassermann was negative. X-ray showed syphilitic osteochondritis of both proximal and distal ends of the tibia and fibula. Child is improving under treatment.

Scurvy and rickets may be difficult to differentiate by roentgenographic means from osteal syphilis of the fetal type.

It is interesting to note that lues of the fetus and newly born child interferes very little with skeletal growth since the fetii which we studied were in all respects of normal growth for the age which they had reached.

SECTION ON NEUROLOGY AND PSYCHIATRY

STEWART, G. N.: **Adrenal Insufficiency.** *Endocrinology*, May, 1921, v, No. 3, p. 283.

When both adrenals are removed from most of the laboratory animals death speedily ensues. There can be no doubt that in the vast majority of cases the animals die of "adrenal insufficiency". The symptoms these animals present, however, are by no means definite, sharp, or characteristic, and it has not been possible to produce experimentally any well-characterized symptoms associated with partial adrenal insufficiency. The question whether experimental adrenal insufficiency is due to the loss of cortex or medulla or both has been much discussed and the evidence tends to show that the cortex is the part of the adrenal indispensable to life. It is a curious fact that while the great bulk of experimental evidence emphasizes the importance of the cortex the clinical writers seem to ignore the existence of the cortex, and "adrenal insufficiency" seems to connote interference with the output of epinephrin and consequent derangement of functions in which epinephrin is assumed to play a leading rôle. It ought to be recognized once and for all that the stock of epinephrin present at any moment in the adrenal medulla is simply a balance and gives no clue to the rate at which it is being given off. Hence the adrenal stored in a gland a few hours after death is no index of the function of the adrenal during life. In contrast to the lack of experimental evidence, or the appearance of clear, definite symptoms of adrenal insufficiency, clinical papers are cited which have been based largely upon speculation without too much critical faculty or exact physiological knowledge. There is no experimental evidence that a diminished output of adrenalin would produce any

symptoms whatever and arterial hypotension is not caused when the output is totally suppressed. Total adrenal insufficiency is produced in animals in all probability by interference with the cortex, and diminished epinephrin output is not an important part of adrenal insufficiency. In recording many papers of the "clinical endocrinologists" the author feels that he has "broken through into an uncanny fourth dimension of medicine where the familiar canons and methods of scientific criticism are become foolishness, where fact and hypothesis are habitually confounded, and nothing is but what is not."

L. C. JOHNSON.

MARANON, G.: *Diabetes Insipidus As a Hypopituitary Syndrome.*
Endocrinology, March, 1921, No. 2, p. 159.

As a result of a careful study of 32 cases of diabetes insipidus the author comments upon the experimental work of Camus, Roussy, Houssay, Leschke and others, who do not admit the hypophyseal pathogeny of diabetes insipidus. He asserts that the clinical and anatomico-pathological data are as valuable as pure experimentation on animals if not superior to it, in making conclusions as to the relation of pathology of the hypophysis to diabetes insipidus, and he believes that the clinical evidence overwhelmingly demonstrates that diabetes insipidus is due to a disturbance of the posterior lobe of the hypophysis and is of the hypofunctional type. Further, the majority of the cases studied were not those of tumor of the hypophysis, and hence the polyuria was not due to pressure on the neighboring nervous centers. Also the fact that injections of pituitrin always relieve the polyuria of diabetes insipidus while they have no effect on the polyuria of chronic nephritis or of diabetes mellitus, leads to the conclusion that pituitrin in diabetes insipidus has the same value as thyroidin in myxedema. Pituitrin used in the same dose (0.5 to 1 c. c. [8 to 16 minims] of the commercial product) produces an effect in various patients, inversely proportional to the degree of polyuria. Those with the most marked polyuria show the greatest effect, and the reduction in polyuria is to normal, for the individual, and never below. The internal secretion of the posterior lobe of the hypophysis exercises, physiologically, a controlling action on the elimination of water through the renal filter, and through disturbance of this con-

trolling mechanism diabetes insipidus is produced. The hormone may act directly on the renal cell, or collaborate with the oliguric centers at the base of the encephalon. The cerebrospinal fluid does not possess the slightest oliguric action, but hypertension of the spinal fluid is a constant phenomenon in diabetes insipidus, and the extraction of a certain amount of the fluid diminishes the polyuria. The importance of the emotions in the pathogeny of diabetes insipidus is emphasized since in many of the cases the origin of the polyuria was coincident with an intense emotional state, and always increased under stress of emotion.

L. C. JOHNSON.

EDDY, N. B.: **The Internal Secretion of the Spleen.** *Endocrinology*, July, 1921, v, No. 4, p. 461.

Probably the adult spleen contributes no new formed elements to the blood, and it does not continually remove any significant number of corpuscles from the circulation. The destruction of old erythrocytes, according to Robertson and Rous, is a process first of fragmentation in the peripheral circulation and these fragments are removed from the blood stream by the spleen, with, perhaps, assistance from the liver and red bone marrow. When fresh protein-free extracts of spleen were injected into rabbits, there occurred within a short time a definite drop in the red cell-count from $1\frac{1}{2}$ to 2 million cells per cubic millimeter. Coincidental with this drop in red cell-count there was a definite leukocytosis. When blood for counts was diluted with spleen extract instead of saline there was the same reduction of red blood-cells, and since it was absent when other tissue extracts were used as a diluent it was considered that the hemolysis was specific to the splenic preparation and not due to foreign tissue substance *per se*. This drop in red blood-cell count was followed by a rise and animals which were used for experiments a few days after the first injection showed a higher red blood-cell count than at the first date. This is more or less in accord with the findings after splenectomy and the inference is drawn that the clinical function of the spleen is the removal from the circulation of the disintegrated erythrocytes, and from this substance the splenic cells elaborate an internal secretion which reduces the resistance of all the erythrocytes.

effecting thus the destruction of the older cells. It is possible that this secretion in turn acts as a stimulant to the bone marrow and is used up in the manufacture of new cells.

L. C. JOHNSON.

BOOTHBY, W. M.: Adenoma of the Thyroid with Hyperthyroidism (Thyrototoxic Adenoma). History of the Recognition of this Disease as a Clinical Entity. A Study of the Symptomatology with Basal Metabolic Rates. *Endocrinology*, January, 1921, v, No. 1, p. 1.

According to Plummer's classification there are two separate and distinct types of hyperthyroidism, each due to a different pathologic change in the thyroid gland. In the one type the hyperthyroidism associated with the clinical syndrome of true exophthalmic goiter, is always accompanied by diffuse hypertrophy and hyperplasia of the thyroid gland; in the other type the hyperthyroidism, not associated with this typical diffuse hypertrophy and hyperplasia, but with the occurrence of adenoma in the gland, is due to the adenoma, and the resulting clinical syndrome, is distinguishable from that occurring in true exophthalmic goiter. The syndrome associated with the hyperthyroidism from adenoma of the thyroid is considered by Plummer to be a distinct clinical entity, and may be defined as a disease associated with adenoma, characterized by an increased basal metabolic rate, excited by an excess of the normal thyroid hormone in the tissues. About middle age, the adenomatous tissue, gradually begins to furnish an excessive amount of the apparently normal thyroid hormone (thyroxin), and this produces the increased metabolic rate and intoxication principally evidenced by nervousness, tremor, tachycardia, loss in strength and weight, and a tendency to hypertension, and in the later stages myocardial disintegration. The underlying cause or stimulus that activates the thyroid to adenomatous growth and hypersecretion is not known. Detailed metabolic rate and blood-pressure studies are reported in 75 cases of adenoma, with hyperthyroidism in which the average basal metabolic rate before treatment was plus 35 per cent, and after operation plus 7 per cent. Similar studies of 201 cases before treatment are also given in which the average basal metabolic rate was plus 28 per cent. In contrast the average basal metabolic rate in 167 cases of adenoma without clinical

evidence of hyperthyroidism was plus 2 per cent; in 18 of these cases the average basal metabolic rate before operation was minus 4 per cent, and it remained practically unchanged, minus 8 per cent, as a result of thyroidectomy. Three groups of exophthalmic goiter cases of varying degrees of severity were studied. In 36 patients with the severest type of the disease the average metabolic rate before treatment was plus 66 per cent; these patients were subjected to rest in bed, at an interval of a week or more, and within ten days after the second ligation the basal metabolic rate was plus 50 per cent. After three months rest at home, these patients returned to the clinic, and were found to have an average basal metabolic rate of plus 42 per cent, with corresponding clinical improvement; within 2 weeks after thyroidectomy, the rate had dropped to plus 19 per cent. In a second group of 52 moderately severe cases, the patients were subjected to the single ligation, and thyroidectomy, one to two weeks later. The basal metabolic rate before treatment was plus 52 per cent; after thyroidectomy plus 15 per cent. In 22 the basal metabolic rate was plus 57 per cent, and ten days after the preliminary, it was plus 41 per cent; within two weeks after thyroidectomy the basal metabolic rate in this group had fallen to plus 16 per cent. In 52 cases with mild exophthalmic goiter on whom a primary thyroidectomy was performed, the average basal metabolic rate before treatment was plus 36 per cent, and 2 weeks after operation it was plus 8 per cent.

L. C. JOHNSON.

BOOTHBY, W. M.: **The Parathyroid Glands. A Review of the Literature.** *Endocrinology*, July, 1921, v, No. 4, p. 403.

After full review of the literature covering the anatomy and physiology, pathology and chemistry of the parathyroids, of idiopathic tetany, and the clinical symptoms and treatment of parathyroid tetany, it is concluded that in many species of animals the removal of all parathyroid tissue, in most instances, causes death from tetany in a few days, the herbivora being less liable to tetany than the carnivora. Age has apparently a definite influence on its frequency and severity as probably also pregnancy and lactation have, while the preservation of very small amounts of parathyroid tissue

prevents tetany or renders it less intense. The function of the parathyroids appears to be distinct and separate from that of the thyroid and their relationship is purely anatomical; for the parathyroids are not embryonic thyroid tissues.

There is evidence that they have to do with calcium or guanidin metabolism or both, and they may play some part in the regulation or maintenance of the acid-base equilibrium in the body. The only definite clinical entity which has yet been proved experimentally to be of parathyroid origin is the tetany seen after operations on the thyroid, and in these cases large doses of calcium usually ameliorate the symptoms. The experimental evidence as to the thyroids being the primary cause of idiopathic tetany unassociated with operative procedures on the thyroid is very limited, but clinical reports seem to indicate that tetany of this type is due to insufficiency of the parathyroid glands. The success of feeding extract of the glands in treatment has been variable.

L. C. JOHNSON.

LEWIS, N. D. C.: **The Pathology of Influenza as Seen in Those with Chronic Mental Disease.** *The Journal of Laboratory and Clinical Medicine*, July, 1921, vi, No. 10, p. 531.

The author concludes with the following: Practically all tissues of the body presented acute changes, the result of the infection; these changes were congestion, edema, degeneration and rupture of walls of blood-vessels resulting in hemorrhages and focal necroses, and alteration in the parenchymatous cells varying in degree from simple albuminous degeneration to complete necrosis. When the organs were the seat of chronic processes having an abundance of new formation blood-vessels, there was a striking hemorrhagic picture produced from the rupture of these vessels, and the associated tissue reactions.

Mucus membranes in general exhibited one or the other of two changes, the congested vessels were plainly visible with bright capillary networks or the membranes were a diffuse beefy red color from rupture of vessels and general outpouring of red blood globules.

In 21 cases the kidneys were practically free from chronic disease, but reacted strongly to the infection by acute parenchymatous cell alterations, marked general edema and universally by hemor-

rhages, which varied in number, size, and location. In another group of 21 cases of original productive nephritis, the acute changes were more diffuse and destructive, particularly the hemorrhages which were often remarkable in extent.

Of the 20 cases clinically diagnosed as dementia precox, 6 showed organic brain disease usually of the nature of a diffuse, or of a focal gliosis, while congestions, hemorrhages, and acute softenings were prominent through all structures regardless of the presence or the absence of an original lesion.

In the brains from senile and arteriosclerotic patients presenting the usual vascular changes and lack of adequate nutrition, the acute process was exceptionally destructive to vessel walls, and focal areas of softening were abundant.

Among the influenzal and postinfluenzal psychoses described by numerous writers, the acute hallucinatory disorders, depressions and dementia precox were the most frequent. The intense meningeal and cortical edema and congestion, the acute process in parenchymatous cells, and the alterations in vessel walls may account for the precipitation of many cases of acute hallucinatory disorder. In later stages of cerebral edema there has been evidence of a tendency to develop depressions, many of which are of the type indicated by the term *manic depressive insanity*.

According to Menninger and others many cases of the dementia precox group, and other major psychoses have passed through a febrile or postfebrile delirium and have shaded gradually into the more prolonged or permanent condition, a state which in those with a latent tendency may perhaps be determined, or aroused to activity by the cortical and uncortical necroses produced by small thromboses and ruptured vessels.

Neurasthenia with its characteristic fatigue without expending energy has been the most frequent postinfluenzal neurosis, and might also be considered in the above statement.

C. M. ANDERSON.

HELMANN, M.: Transient Mental Derangement in Child (Trastorno mental transitorio en una niña de cuatro de edad). *La Semana medica*, March 3, 1921, xxviii, 265.

The patient was a child, four years old, feminine, born of healthy

parents who were no blood relations, were given to no alcoholism, or no venereal disease in the ascendancy. The child had had no intestinal disease, and had been nursed by her mother 14 months. It had suddenly jumped around the room, and fallen; as it returned to consciousness, it looked at its father with great horror. It then muttered incoherent and incomprehensible words. It did not sleep all night, being delirious.

The physical examination showed nothing abnormal, no constipation, no signs of traumatism, no cardiac or respiratory symptoms. The next day there was the same mental incoherence; names and words the child had never heard were uttered by it. Milk diet, purgatives and bromid chloral were given. The condition lasted 13 days when deep sleep set in, and was continued a day and one-half. The child was then perfectly calm and amiable without fear of its parents.

ANALYTICAL TABLE OF CONTENTS

OF THE DECEMBER NUMBER

GENERAL MEDICINE

EDITORIAL: The Search for a Specific Treatment of Tuberculosis. The Spahlinger Treatment	1059
RAWLS, R. M.: The Status of Intrauterine Stem Pessary Based on a Study of 205 Cases with End Results in 117 Cases	1061
HOLLAND, A. L.: The Significance of Some Gastro-intestinal Symptoms	1063
KEYES, E. L., JR.: Problems Concerning Urinary Calculi	1066
BARTLETT, E. I.: Clinically Doubtful Breast Tumors: Their Diagnosis and Treatment	1068
Le MONACHO, D.: Injections of Saccharose	1071
ZUCKERKANDL, O.: Tuberculosis of Epididymis and its Operative Treatment	1072
RUCKER, M. P.: Potter Version. The Elimination of the Second Stage of Labor	1073
ATHERTON, L.: Ergot in Typhoid	1074
SARGENT, J. C.: Chronic Cystitis	1074
AHLWEDE, E.: Digestion of Keloids, Cicatrices and Buboës with Pepsin-Hydrochloric Acid	1076
McNEIL, C.: Anaphylaxis in Man. Its Bearing upon Hay-fever, Animal and Food Idiosyncrasy, and Asthma	1077
QUIGLEY, J. K.: Hematuria in Pregnancy	1078
JORDAN, E. O., AND SHARP, W. B.: Effect of Vaccination Against Influenza and Some Other Respiratory Infections	1079
RENAUD, M.: Provocation of the Beneficial Crisis in the Primitive Pneumopathies by the Intravenous Injection of Anti-pneumococcal Serum and Adrenalin. Statistics, Results. Attempt at Interpretation.....	1080
SMEAD, L. F.: Thrombophlebitis During the Puerperium Following Influenza, with a Report of Cases	1083
QUIMBY, W. A.: The Co-existence of Gall-Bladder and Appendiceal Infection	1086
PALMER, G. T.: The Taking of Temperature in the Diagnosis and Treatment of Tuberculosis	1087
REHAN, R. J.: Triple Calcium Phosphate as a Stimulant for Bone Reproduction (healing) in Fractures	1088
MASON, E. C.: The Pharmacologic Action of Lead in Organic Combination.....	1089
CULPEPPER, W. L., AND ABLESON, M.: Chaulmoogra Oil in the Treatment of Tuberculosis	1091
HEAD, G. D., AND JOHNSON, R. A.: Carotinemia. Report of a Case in an Adult	1092
ROSENOW, E. C., AND ASHEY, W.: Focal Infection and Elective Localization in the Etiology of Myositis	1093
WOODYATT, R. T.: Objects and Methods of Diet Adjustment in Diabetes.....	1094
GOLDSMITH, A. A.: Syphilis of the Stomach	1096
PARKER, G.: Etiologic and Therapeutic Considerations in Arthritis	1099
CAMPBELL, J. M.: Acholuric Jaundice	1101
CULLEN, E. K.: Diverticulum of the First Portion of the Duodenum	1101
NIXON, P. I.: Acute Dilatation of the Stomach following Gynecological Operations	1102

LABORATORY AND RESEARCH

	PAGE
SCHMIDT, C. L. A.: Immunological Experiments with Denatured and Insoluble Proteins	1105
BURNETT, T. C., AND SCHMIDT, C. L. A.: Immunological Experiments with Catalase	1105
GREELY, H., AND BRERETON, M.: The Bacteriology of Chronic Non-tuberculous Lung Disease	1106
EGGSTEN, A. A.: The Alkali Reserve of the Blood-plasma During Protein Shock	1106
GAY, F. P., AND RHODES, B.: Experimental Streptococcus Pneumonia and Empyema	1107
MACCARTY, W. C., AND MAHLE, A. E.: Relation of Differentiation and Lymphocytic Infiltration to Post-operative Longevity in Gastric Carcinoma	1108
NEILSON, C. H., AND WHEELON, H.: Studies on the Resistance of the Red Blood-cells. II. The Resistance of the Red Blood-cells in Disease to the Hemolytic Action of Sapotoxin	1110
MAGATH, T. B.: A Test for Early Renal Insufficiency	1111
PRYER, R. W.: The Etiology of Scarlet Fever. III. The Alkali-producing Organisms in Scarlet Fever	1113
EGGSTEN, A. A.: The Alkali Reserve of Blood-plasma During Acute Anaphylactic Shock	1113
NEILSON, C. H., AND WHEELON, H.: Studies on the Resistance of the Red Blood-cells. III. The Relation of Cholesterol to the Resistance of the Red Blood-cells to the Hemolytic Action of Sapotoxin	1114
CECIL, R. L., AND STEFFEN, G.: I. Studies on Pneumococcus Immunity. Active Immunization of Monkeys against Pneumococcus Type I Pneumonia with Pneumococcus Type I Vaccine	1115
NEILSON, C. H., AND WHEELON, H.: Studies on the Resistance of the Red Blood-cells. I. Resistance of the Red Blood-cells in Health to the Hemolytic Action of Sapotoxin	1116
JENKINS, C. E.: Notes on the Cultivation of the Gonococcus	1117
NUZUM, J. W.: A Critical Study of an Organism Associated with a Transplantable Carcinoma of the White Mouse	1119
FLANDIN, C., AND VALLERY-RADOT, P.: Ictero-genous Serum Anaphylaxis	1121
HURST, A. F., AND ROWLANDS, R. P.: Hour-glass Contraction of the Stomach	1123

PEDIATRICS

WORINGER, P.: A Case of Fat Diarrhea in a Nursling	1125
NAVARRO, J. C.: Cardio-cirrhosis (Nutinell's or Pick's Disease)-Etiology	1125
MARFAN, A. B.: The States of Malnutrition in Early Infancy—Hypothrepsia and Athrepsia	1126
SIEGEL, A. E.: Pulmonary Tuberculosis in Young Children	1128
COMBY, J.: General Review of Medical Treatment of Pyloric Stenosis in Infants	1129
REWALT, R. K.: Vaccine Treatment of Pertussis	1130
VEAU, V., AND RUPPE, C.: A Case of Median Superior Hare Lip	1131
D'ESPINE, A.: Two Cases of Gallop Rhythm in Young Children Without Renal Lesions	1132
STILL, G. F.: On Chronic Intussusception in Children	1132
GOWRING, B. W.: Measles, Intussusception and Appendectomy in a Baby Seven Months Old	1133
RICHARD, P.: Diagnosis and Treatment of the Pretuberculous State in Infants	1134

ROENTGENOLOGY AND ELECTROTHERAPEUTICS

JAPIOT AND BUSSY: Radiotherapy in Interstitial Keratitis	1137
WARE, J. G.: Hirschsprung's Disease	1137

	PAGE
KING, C. S.: Sigmoid Impaction—Its Significance, Pathology and Treatment	1139
GROVER, CHRISTIE, AND MERRITT: The Present Status of Roentgen and Radium Treatment of Cancer of the Breast	1140
SHIPLEY, P. G., PEARSON, J. W., WEECH, A. A., AND GREENE, C. H.: X-ray Pictures of the Bones in the Diagnosis of Syphilis in the Fetus and in Young Infants	1141

NEUROLOGY AND PSYCHIATRY

STEWART, G. N.: Adrenal Insufficiency	1145
MARANON, G.: Diabetes Insipidus as a Hypopituitary Syndrome	1146
EDDY, N. B.: The Internal Secretion of the Spleen	1147
BOOTHBY, W. M.: Adenoma of the Thyroid with Hyperthyroidism (Thyrototoxic Adenoma). History of the Recognition of this Disease as a Clinical Entity. A Study of the Symptomatology with Basal Metabolic Rates	1148
BOOTHBY, W. M.: The Parathyroid Glands. A Review of the Literature.	1149
LEWIS, N. D. C.: The Pathology of Influenza as Seen in those with Chronic Mental Disease	1150
HELMANN, M.: Transient Mental Derangement in Child	1151

INDEX OF AUTHORS

	PAGE		PAGE
AARON, C. D.: Active immunization by means of nonvirulent and nontoxic living tubercle bacilli	782	ALLEN, R. C.: Complete heart-block in a case of diphtheria	643
ABLESON, M. See CULPEPPER, W. L.		ALLISON, F. G.: Acute purulent otitis media in children	833
ABT, I. A., AND TUMPEER, I. H.: The significance of xanthochromia of the cerebrospinal fluid	258	ALLISON, R. G.: The clinical importance of the different types of pulmonary tuberculosis as determined by roentgen examination.....	465
ACHARD, C., AND RAMOND, L.: Electrical chorea of Henoch-Bergeron	349	ALTSCHUL, W.: Spina bifida and other malformations of the spine	552
ACKERT, J. E.: On the life-history of <i>Davainea Tetragona</i> , a fowl tapeworm ...	242	ALVAREZ, W. C.: Blood-pressure in University Freshmen and office patients....	326
ADACHI, K.: Flagellum of the microorganism of the rat-bite fever	1010	AMBERSON, J. B., JR.: The roentgenographic pathology of pulmonary tuberculosis, including description of tissue changes as revealed by stereograms and a critical study of the clinical bearing of the mutations of destruction and repair	843
ADLER, F. H. See FRAZIER, C. H.		AMOSS, H. L.: Immunological distinctions of encephalitis and poliomyelitis	725
ADLER, L.: Operative <i>x</i> -ray treatment of uterine carcinoma	658	ANDERSON, H. See OPIE, E. L.	
AHLISWEDE, E.: Digestion of keloids, cicatrices and buboes with pepsin - hydrochloric acid	1076	ANDERSON, H. B.: Some observations on the use of ar-sphenamin: Its effect on the kidneys and its therapeutic results	1006
AIKINS, W. H. B.: Radium in toxic goiter. Its treatment	927	ANDUZE-ACHER, R.: Urobilinuria: Its origin and clinical significance	112
ALDERSON AND PRUET: Poison oak dermatitis	920	ANTOINE, E. See BENSAUDE, R.	
ALEXANDER, H. L.: Preciptin response in the blood of rabbits following subarachnoid injections of horse serum	820	ANTONIUS, E., AND CZEPA, A.: Dental pathology and internal disease	995
ALEXANDER, H. L., AND PADDOCK, R.: Bronchial asthma: response to pilocarpin and epinephrin	410	ARNOLD, L.: Bacillus influenzae in normal and pathologic throats	124
ALLEN, F. M.: Experimental studies in diabetes. Series II. Changes in assimilation by alterations of body mass	623	Classification of Streptococcus. I. Streptococci isolated from normal throats. II. Streptococci isolated from influenza throats. Classification by sugar fermentation	142
ALLEN, F. M., AND WISHART, M. B.: Experimental studies in diabetes. Series II. The internal pancreas function in relation to body mass and metabolism. The effects of exercise	816	ARNSTEIN, N. See FLEISHER, M. S.	
		ASHBY, W. See BUTSCH, J. L.	

INDEX OF AUTHORS

	PAGE
ASHBY, W. <i>See</i> ROSENOW, E. C.	
ASHURST, A. P. C.: Umbilical hernia	915
ATMERSON, L.: Ergot in typhoid.	1074
ATTINGER, E.: Mitral insufficiency in polyarthritis and syphilis. Influence of anti-syphilitic therapy on heart disease	563
AUBERTIN, C., AND YACOEI, J.: Pernicious anemia and azotemic nephritis	110
AUDLE, J.: The diet and health: amount and kind of food required.....	412
AUER, J. <i>See</i> MELTZER, S. J.	
BACKUS, P. L. <i>See</i> COLLIP, J. B.	
BACON, M. M.: The anatomy of feet and their full efficiency	695
BAEFFER, F. H., AND FREIDENWALD, J.: Roentgenological aspects of lower right quadrant lesions	551
BALEN, M. J.: Addison's disease	318
BALLENGER, E. G., AND ELDER, O. F.: An important classification of albuminurias	788
BALYEAT, R. M.: Diagnosis and significance of tracheobronchial adenopathy	735
BAMBERGER, A.: Blood transfusion in the new born	256
BANUELOS, M.: Studies on cardiac dynamics	3
BARACH, J.: Nocturnal polyuria	977
BARBER, H. W.: Two cases of psoriasis treated by Danysz's method	803
BARBOUR, H. G., AND RAPOPORT, F. H.: A comparison of rectal with colon injections of epinephrin, with reference to pressor effects and to glycosuria	531
BARD, L.: The diagnosis of syphilitic tumors in the stomach and intestines	34
BARDET, D. <i>See</i> BARDET, G.	
BARDET, G., AND BARDET, D.: Contribution to the study of the internal use of radium and emanation	369
BARKER, L. F.: Group diagnosis and group therapy	304
The classical endocrine syndromes	755

	PAGE
BARRINGER, T. B., JR.: Physical exercise in heart disease...	1003
The etiology of heart-failure	704
BARRIO, N. G.: Treatment of pinworms by bismuth carbonate	956
BARRIO, N. G. <i>See</i> GARCIA DEL DIESTRO, J.	
BARTLETT, E. I.: Clinically doubtful breast tumors: their diagnosis and treatment...	1068
BASHIUSKI, R.: Cardiac conditions in children; their significance and prognosis .	642
BAUMBERGER, J. P., PERRY, E. E., AND MARTIN, E. G.: An outpatient study of users and non-users of tobacco in a strenuous physical occupation...	928
BAYER: Vascular syphilis	36
BECK, D. J.: Compulsion and depression	470
BECK, H. G.: Hypophyseal disorders with special reference to Froehlich's syndrome	473
BEINHAUER, L. G.: Effect of therapeutic doses of mercury of the kidneys and the duration of its excretion...	310
BENEDICT, F. G. <i>See</i> HARRIS, J. A.	
BENSAUDE, R., AND ANTOINE, E.: Severe non-dysenteric colitis and recto-colitis.....	393
BENTHIN: Peritonitis: Ether therapy and prophylaxis..	883
BERGEM, O. <i>See</i> MILLER, R. J.	
BESREDKA: About the action of serums administered through the respiratory apparatus	32
BEVIER, G., AND SHEVKY, A. E.: Urea secretion after supra-renalectomy	341
BEYERMAN, W.: The position of manic-depressive psychosis in the system of psychoses	852
BICEK, J. <i>See</i> HIRSCHFELDER, A. D., KUCERA, F. J., AND HANSON, W.	
BICKEL, H.: Origin of hallucinations	477
BIRCH-HIRSCHFELD: Injury of eyes by roentgen rays	750
BISAILLON, M., AND MATSON, R. W.: Anaphylaxis in asthma and hay-fever	617
BLACK, L. T. <i>See</i> CORPER, H. J.	

	PAGE		PAGE
BLACKFORD, J. M.: Clinical review of stomach symptoms	516	BONILLA, E. See MARANON, G.	
BLACK-MILNE, J.: Two cases of anomalies of growth: Unilateral macrosomia and congenital overgrowth of the right leg	72	BONNER, C. A.: Paresis treatment by arsphenamin and mercury	1041
BLAINE, E. S.: An x-ray burn of third degree followed by rapid healing	1033	BOOTHBY, W. M.: Adenoma of the thyroid with hyperthyroidism (thyrotoxic adenoma). History of the recognition of this disease as a clinical entity. A study of the symptomatology with basal metabolic rates	1148
BLAKE, F. G.: Experimental measles. Read at the seventy-second annual session of the American Medical Association, held in Boston	827	The parathyroid glands. A review of the literature	1149
BLAKE, F. G. See CECIL, R. L.		BOROBIO, P.: Poliomyelitis	259
BLAKE, F. G., AND TRASK, J. D., JR.: Studies on measles. I. Susceptibility of monkeys to the virus of measles	620	BOSLER, A. G.: Diphtheria immunization	424
BLANC, N. E. See COOPER, G. M.		BOUQUIER: An American colony of war orphans	636
BLANTON, W. B., AND HEALEY, W.: Hemochromatosis. Report of four cases	686	BOURNIGAU, A. See ROBIN, A.	
BLAU, A. J.: The Shick test, its control and active immunization against diphtheria	334	ROUTELIER. See THIBERGE, G.	
BLECHMANN, G.: Syphilitic jaundice in early infancy	443	BOVERI, P.: The cerebrospinal fluid in epidemic encephalitis	571
BLOCK, F. B.: The treatment of acute gonorrhea in females	325	BOYER, E. E. H.: Benign tumors of the gastro-intestinal tract	609
BLOEDORN, W. A., AND HOUGHTON, J. E.: The occurrence of abnormal leukocytes in the blood in acute infections; Acute benign lymphoblastosis	537	BRADLEY, E. B.: The importance of a knowledge of syphilis to the internist	499
BLOOM, V. See MACHT, D. I.		BRANDENSTEIN, D.: Abdominal actinomycosis	413
BLOOMFIELD, A. L.: The mechanism of the bacillus carrier state with special reference to the Friedlander bacillus	930	BREHN, W.: After care of obstetrical cases—immediate or remote	900
BLUMER, G.: Report of a case of extensive cavernous angioma of the head, face and neck, with attacks of fever and somnolence	1051	BREMERON, M. See GREELEY, H.	
BOAS, E. P.: The value of the pneumothorax treatment of tuberculosis	603	BRET, J.: Hypertrophy of the right heart. Measurements by the method of W. Muller	434
BOCK, A. V. See MEANS, J. H.		BRIAND, M., AND ROUQUIER, A.: The infectious or toxic origin of inorganic motor disturbances	285
BOGGS, R. H.: The treatment of tuberculous adenitis by roentgen rays and radium	1035	BROCK, S. See KAY, W. E.	
BONAR, B. E. See GRULEE, C. G.		BROCKMAN, C. J.: Hodgkin's disease	886
BONAR, B. E. See PHEMISTER, D. B.		BRODERS, A. C., AND MAHLE, A. F.: Primary lymphosarcoma of the stomach. A report of twelve cases	606
		BROOKS, E. B.: Significance of unequal pupils	665
		BROOKS, H.: Syphilis of the heart	707
		BROWN. See ZALISKY.	
		BROWN, W. H., AND PEARCE, L.: I. Superinfection in experimental syphilis, following the administration of subcurative doses of arsphenamin or nearsphenamin	1008

INDEX OF AUTHORS

vii

	PAGE
BROWN, L. <i>See</i> HEISE, F. H.	
BROWN, L. T. <i>See</i> TALBOT, F. B.	
BROWN, T. R.: The absence of pancreatic secretions in sprue and the employment of pancreatic extract in the treatment of this disease..	968
BROWN, W. H. <i>See</i> PEARCE, L.	
BROWN, W. H., AND PEARCE, L.: Chemotherapy of trypanosome and spirochete infections. Biological series. IV. The action of N-phenylglycinamid-p-arsonic acid upon spirochete infections. Latent infections with the demonstration of spirochete pallida in lymphoid tissues of the rabbit	818
BROWN, W. H., PEARCE, L., AND WITHERBEE, W. D.: Experimental syphilis in the rabbit. VI. Affections of bone, cartilage, tendons, and synovial membranes...	723
BROWNE, F. J. <i>See</i> JOHNSTONE, R. W.	
BRUHL, F.: Luminal in epilepsy	479
BRUN, R.: Clinical and pathogenic studies on lumbago..	279
BRUNI, H.: Sexual neurasthenia	572
BRUUSGAARD, E.: Congenital syphilis in the second generation	740
BRYANT, F.: The treatment of cancer	691
BUCHANAN, J. A.: The familial distribution of the migraine-epilepsy syndrome	287
BUCKMAN, T. E., AND HALLISEY, J. E.: Studies in the properties of blood platelets	535
BULGER, H. A.: Blood changes in a case of hemophilia after transfusion	540
BULKLEY, L. D.: On the cure of cancer	137
BULLOWA, J. G. M., AND GOTTLIEB, C.: Roentgenray studies of bronchial function...	466
BUMPU, H. C., AND MEISSER, J. G.: Focal infection and selective localization of streptococci in pyelonephritis	821
BUNTING, C. H.: The leukocytic picture in influenza..	1001

	PAGE
BUNTING, C. H., AND HUSTON, J.: Fate of the lymphocyte.	1009
BURKE, V., ELDER, J. C., AND PISCHEL, D.: Treatment of botulism	508
BURNETT, T. C., AND SCHMIDT, C. L. A.: Immunological experiments with catalase.	1105
BUSMAN, G. J.: Rubber tubing as a factor in reaction to the blood transfusion	150
BUSSY. <i>See</i> JAPIOT.	
BUTLER, T. H.: Some examples of idiosyncrasy	899
BUTSCH, J. L., AND ASHBY, W.: The effect of the digestive period and other factors in reactions after blood transfusions	814
CAALSMEER, W.: Sinusal arrhythmia	120
CALDERIN, A. M.: Pathogenesis of laryngeal spasm in the breast-fed infant	254
CAMPBELL, J. M.: Acholuric jaundice	1101
CAREY, H. W.: Anthrax from the shaving brush and primary anthrax meningitis..	110
CARTER, W. S.: The effect of ether anesthesia on the alkali reserve	234
CASTAIGNE AND PAILLARD: Chronic syphilitic icterus in adults	422
CAULFIELD, A. H. W.: Sensitization in bronchial asthma and hay-fever	681
CAWSTON, F. G.: Colloidal drugs in the treatment of Bilharzia disease in young people	300
CECIL, R. L.: Pneumococcus vaccine	690
CECIL, R. L., AND BLAKE, F. G.: Studies on experimental pneumonia. V. Active immunity against experimental pneumococcus pneumonia in monkeys following vaccination with living cultures of pneumococcus	234
CECIL, R. L., AND STEFFEN, G. I.: Acute respiratory infection in man following inoculation with virulent bacillus influenzae	964
I. Studies on pneumococcus immunity. Active immunization of monkeys against	

	PAGE		PAGE
pneumococcus type I pneumonia with pneumococcus type I vaccine	1115	XIII. Behavior of the heart in the experimental infection of guinea pigs and monkeys with leptospira icteroids and leptospira icterohæmorrhagiæ	939
CHALFANT, J. A.: Ovarian pregnancy with report of a case	910	COLLINS, G. W. See EMERSON, H. W.	
CHALMERS, A. J., AND MACDONALD, N.: Some cosmopolitan Sudan skin infections. I. Herpes iris	105	COLLIP, J. B., AND BACKUS, P. L.: Alkali reserve of the blood-plasma, spinal fluid and lymph.....	388
CHARGIN, L.: Antisyphilitic therapy. A comparative study of some intensive methods	710	COMBY, J.: General review of medical treatment of pyloric stenosis in infants	1129
CHEINISSE: Ethylhydrocuprien in ophthalmology	989	Migraine in infants	839
CHESNEY, A. M., AND SNOW, F. W.: A report of an epidemic of influenza in an Army Post of the American Expeditionary Forces in France	197	Review of rat-bite fever (sodoku) in children.....	450
CHIDECKEL, M.: Dreams as the cause of death and disease.	403	The role of the outer covering of cereals in infant feeding	354
CHRISTIAN, H. A.: Bright's disease with special reference to treatment.....	403	Congenital stenosis of the duodenum, general review	641
CHRISTIE. See GROVER.		Wilson's disease. General review	644
CHURCHMAN, J. W.: Further studies on the behavior of bacteria toward gentian violet. Isolation of a gentian-positive strain from a culture of a gentian-negative organism (a "strain-within-a-strain" variant)	1012	COMBY, J., AND PALLEGOIX, J.: Cured cerebrospinal meningitis in a girl of eight months	452
CHUTE, A. L.: The significance of hematuria. A study of one hundred personal cases	6	CONSTANTINESCU, C. D., AND JONESCU, A.: Acute bismuth subnitrate poisoning	203
CLARK, T.: Malnutrition	509	COOK, M. W.: The relation of the rate of absorption of antigen to the production of immunity	60
COCA, A. F.: Hypersensitivity: Anaphylaxis and allergy	65	COOKE, J. W.: Complement-fixation in influenza with bacillus influenzae antigens	435
COCA, A. F., AND KELLEY, M. F.: VI. A serological study of the bacillus of Pfeiffer. I. The etiological relation of the bacillus of Pfeiffer to influenza	932	COOPER, G. M., MISHULOW, L., AND BLANC, N. E.: II. A study of the serological relationships of pneumococci from the upper respiratory tract with special reference to common colds and influenzal conditions	950
COCA, A. F., AND MITSUJI, K.: I. On the quantitative reaction of partially neutralized precipitin <i>in vitro</i> and <i>in vivo</i> . Studies in anaphylaxis	440	COOPER, G. See PARK, W. H.	
COHEN, M. B.: Pruritus of anaphylactic origin	521	CORKERY, J. R. See MACCARTY, W. C.	
COHN, A. E.: The effort syndrome together with a consideration of the significance of certain murmurs..	702	CORNELL, B. S.: Clinical evidences of acidemia in chronic nephritis	503
COHN, A. E., AND NOGUCHI, H.: Etiology of yellow fever.		CORNELL, E. L., AND STILLIANS, A. W.: Syphilis in pregnancy and labor	421
		CORPER, H. J., COSMAN, P., GILMORE, W. M., AND BLACK, L. T.: Hypertrophic osteoarthropathy in pulmonary tuberculosis	966

INDEX OF AUTHORS

ix

	PAGE
CORPER, H. J., GAUSS, H., AND RENSCH, O. B.: Resistance to tuberculosis. A non-im- munologic chemical factor worthy of consideration ..	622
COSMAN, P. <i>See</i> CORPER, H. J.	
COWDRY, E. V.: The reticular material of developing blood-cells	936
COWIE, D. M.: The duct sign in mumps	161
COWIE, D. M., AND PARSONS, J. P.: Studies of blood sug- ar; effect of blood consti- tuents on picrate solu- tions. A consideration of the limitations of the modi- fied Lewis-Benedict test...	437
CRAIG, C. F., AND WILLIAMS, W. C.: Experimental ob- servations upon the effect of cholesteremia on the re- sults of the Wassermann test	1018
CRAIG, J.: An operation for retroflexion of the uterus..	897
CRAIG, S. H. <i>See</i> HUNTOON, F. M.	
CRAIG, S. L. <i>See</i> MURPHY, J. B.	
CRAMER, A., AND SCHIFF, P.: Starvation-osteomalacia ..	204
CREIVE, J. E.: Report of a case of diaphragmatic hernia...	352
CRESS, W. W.: Intestinal para- sites as a cause of appen- dicitis	401
CRILE, G. W.: The relation of the thyroid and of the ad- renals to the electric con- ductivity of other tissues.	568
CROHN, B. B., AND REISS, J.: Alimentary hypersecretion; gastric hypersecretion; gastrochronorrhea	515
CROLL, H. M. <i>See</i> MYERS, V.	
CSONKA, F. A.: A study of the nephelometric values of cholesterol and the higher fatty acids	246
CUADRA, A.: Case of congeni- tal malaria	255
CULLEN, E. K.: Diverticulum of the first portion of the duodenum	1101
CULPEPPER, W. L., AND ABLESON, M.: Chaulmoogra oil in the treatment of tuberculosis..	1091
Report on 5000 bloods typed using Moss's grouping	722
CUMMINGS, H. H.: Modern care of the obstetrical pa- tient	900

	PAGE
CUROINO, M.: Milk as trans- mitters of tuberculosis	720
CZEPA, A.: Death from suffo- cation, after irradiation of a mediastinal tumor	748
CZEPA, A. <i>See</i> ANTONIUS, E.	
DA COSTA, J. C.: Paget's dis- ease of the bone	881
DANA, H. W.: Myocardial le- sions in school children ...	1024
DANZER, C. S., AND HOOKER, D. R.: Determination of the capillary blood-pressure in man with the micro-capil- lary tonometer	154
DARLING, S. T., AND SMILLIE, W. G.: The technic of cheno- podium administration in hookworm disease.....	409
DAVIDSON, H. J.: A new pro- cedure in the treatment of eclampsia	566
DAVIS, E. G.: Urinary antisep- sis: A study of the anti- septic properties and the renal excretion of 204 anilin dyes	817
DAVIS, L. C. <i>See</i> KOLMER, J. A.	
DAVIS, T. K., AND KRAUS, W. M.: The colloidal gold curve in epidemic encephali- tis; a preliminary note	725
DAWSON, P. R. <i>See</i> SULLIVAN, M. X.	
DE ANGELIS, F.: Affection of the oral cavity with fusi- form and spirilla of Vin- cent	835
DEELMAN, H. T. <i>See</i> WOLF, L. K.	
DE GRAAF SWELLENGREBEL, J. M. H. <i>See</i> SWELLENGREBEL, N. H.	
DELEVA, P.: The study of mic- rofibrillation of the myo- cardium	433
DEMAYER: Origin of the ven- tricular phases of the elec- trocardiogram	428
DENNY, H. T. <i>See</i> POVITSKY, O. R.	
DENZER, B.: A new method of diagnosis of peritonitis in infancy and childhood	349
D'ESPINE, A.: Two cases of gal- lop rhythm in young chil- dren without renal lesions.	1132
DEPARTMENT OF AGRICULTURE: Botulism	217

	PAGE
DERCUM, F. X.: Somatic symptoms in nervous and mental diseases	283
DEUEL, H. J. <i>See</i> HOLMES, A. D.	
DE VILLA, S. <i>See</i> MODIGLIANI, E.	
De VILLAYERDE, J. M.: Syringomyelia in children	1021
DeWITT, L. M.: Mercury compounds in the chemotherapy of experimental tuberculosis in guinea pigs.....	543
DIDSBUY, G.: Pathological physiology and treatment of migraine	281
DINEGAR, R. <i>See</i> LEWIS, K. M.	
DONZELOT. <i>See</i> VAQUES	
DOPTER, C.: Hyperglycorachia in epidemic encephalitis ...	380
DRAKE, C. ST. C.: Influence of the war on preventive medicine and public health	20
DRINKER, C. K. <i>See</i> LUND, C. C.	
DRINKER, C. K., AND SHAW, L. A.: V. Quantitative distribution of particulate material (manganese dioxide) administered intravenously to the cat	938
DROUIN, H. <i>See</i> GRENET, H.	
DRUMMOND, J.: Seasickness...	122
DU BRAY, E. S.: Saccular aneurysm of the descending thoracic aorta	589
DUNCAN, R.: Recent developments in radium therapy...	746
DUNHAM, H. K., AND SKAVLOM, J. H.: A comparative study of the pathology and x-ray densities of tuberculous lung lesions	841
DUPUY: The "fictitious meal test" in gastric pathology.	43
DURAN, A. L.: Osteosynthesis in the treatment of Pott's disease	957
DUVAL, C. W., AND HARRIS, W. H.: The antigenic property of the Pfeiffer bacillus as related to its value in the prophylaxis of epidemic influenza	51
EARLE, H. G., AND GOODALL: Basal metabolism and its clinical significance	985
EEBERSON, F., AND ENGMAN, M.: An experimental study of	

	PAGE
the latent syphilitic as a carrier	533
EDDY, N. B.: The internal secretion of the spleen	1147
EDITORIAL: A new anti-serum for tuberculosis.....	419
The diagnosis and prognosis of mushroom poisoning	795
The search for a specific treatment of tuberculosis. The Spahlinger treatment.	1059
The treatment of cancer	315
EDWARDS, C. R.: Acute infection of the thyroid gland...	694
EGGLESTON, C.: Some newer concepts in digitalis therapy	502
EGGSTEN, A. A.: The alkali reserve of the blood-plasma during protein shock	1106
The alkali reserve of blood-plasma during acute anaphylactic shock	1113
EHRENCLAU, A. H.: A case of acute anilin poisoning.....	675
EINHORN, M.: Studies on the action of various salts on the liver after their introduction into the duodenum.	1017
ELDER, O. F. <i>See</i> BALLENGER, E. G.	
ELDER, J. C. <i>See</i> BURKE, V.	
ELLERMANN, V.: A new strain of transmissible leukemia in fowls (Strain H)	823
ELLIS, M. M.: Pulse-rate and blood-pressure responses of men to postural changes ..	978
ELLIS, R. <i>See</i> HART, E. B.	
ELSE, J. E.: Paget's disease of the breast	483
ELY, F. A.: Epidemic encephalitis, residual symptoms, chronicity and relapsing tendency	667
EMERSON, H. W., AND COLLINS, G. W.: Botulism from canned ripe olives	322
EMGE, L. A., AND JENSON, J. P.: The effect of benzyl benzoate on the leukocytes of the rabbit	944
EMMONS, R. V. B. <i>See</i> MASON, E. H.	
ENGELBACH, W.: Classification of disorders of the hypophysis	381
ENGMAN, M. <i>See</i> EEBERSON, F.	
ENGMAN, M. F.: Acne vaccine therapy	689
ETIENNE: Vascular syphilis..	35

	PAGE		PAGE
ETRIS, S. <i>See</i> HUNTOON, F. M.		AND ARNSTEIN, N.: Sero-	
EVANS, E. L.: Functional re-		logical relationships of liver	
sults of successfully reduced		and kidney	250
congenital dislocation of		FLOERSHEIM, S.: Gastric dis-	
the hip	640	turbances in appendicular	
EXNER, H. V.: Some observa-		inflammation	320
tions on the functions of		FOLEY, J. A. <i>See</i> LUND F. B.	
the suprarenal glands in		FOOT, N. C.: Studies on endo-	
white rats	68	thelial reactions. IV. The	
EYSTER, J. A. E. <i>See</i> MEEK, W.		endothelium in experiment-	
J.		al general miliary tubercul-	
FABER, K.: The etiology of		osis in rabbits	721
achylia gastrica.....	406	FORBES, H. S.: A survey of	
FARLEY, D. L.: Impetigo con-		carbon monoxid poisoning	
tagiosa	987	in American steel works,	
FAROY. <i>See</i> LOEPER.		metal mines, and coal mines	796
FAUGHT, F. A.: A rational in-		FORDYCE, J. A.: The import-	
terpretation of blood-pres-		ance of recognizing and	
sure findings	771	treating neurosyphilis in	
FEDELE, F.: Primary lympho-		the early period of the in-	
sarcoma of the tonsil	550	fection	585
FEILICHENFELD, D. L.: Acute		FORSELL, G.: A few notes on	
and chronic vagotonia	116	the diagnosis and different-	
FENLON, R. L.: A diet for per-		ial diagnosis of tuberculosis	
nicious anemia	771	in bones and joints	650
FEUILLADE, P. H.: Treatment		FORSTER, A. M. <i>See</i> WEBB, G.	
of sciatic neuralgia with		B.	
epidural injections	506	FOSTER, N. B.: Notes on the	
FEY. <i>See</i> PHILLIP.		diagnosis of bronchopneu-	
FIELD, C. W. <i>See</i> HIGLEY, H. A.		monia and its complications	591
FINDER, G.: Plaut-Vincent's		FOX, H.: Arteriosclerosis in	
angina	712	wild animals	247
FINDLAY, L., AND SHARPE, J. S.: Adult tetany and methyl-		FRANTZ, M. H.: Hyperthyroid-	
guanidin. A metabolic		ism in a child	637
study	148	FRAZIER, C. H., AND ADLER, F. H.: Observations on the	
FINLEY, C. S.: Endocrine stim-		basal metabolism estima-	
ulation as affecting dream		tations in the goiter clinic of	
content	666	the University Hospital ..	1002
FINNEY, J. M. T., JR. <i>See</i> SIS-		FREEDLANDER, S. O.: Treat-	
SON, W. R.		ment of tetanus	969
FISHBERG, M.: Discernment of		FREEMAN, E. B.: Spasmodic	
intrathoracic neoplasms and		stenosis of the esophagus..	805
aid of diagnostic pneumo-		FRENZEL, R.: Neurotic suffu-	
thorax	780	sion of the skin	89
Pulmonary sequels of influ-		FREUDENTHAL, W.: Telangiect-	
enza	596	ases of the face and	
FITZ, R.: The phenolsulphone-		mucous membranes of the	
phthalein test and the non-		nose and throat associated	
protein nitrogen of the		with severe epistaxis	677
blood in chronic nephritis..	157	FREYSTADTL, B.: Phlebectasia	
The relation of hyperthyroid-		as a cause of tracheal hem-	
ism to diabetes mellitus....	572	orrhage	394
FLANDIN, C., AND VALLERY-RA-		FRIEDENWALD, J. <i>See</i> BAETJER,	
DOT, P.: Ictero-genous serum		F. H.	
anaphylaxis	1121	FRIEDENWALD, J., AND MORRIS-	
FLEISHER, M. S., AND ARNSTEIN,		ON, T. H.: Some observa-	
N.: Specificity of anti-or-		tions on the Sippy treat-	
gan sera	822	ment of peptic ulcer	40
FLEISHER, M. S., HALL, T. G.,		FROTHINGHAM, C.: Influenza .	683
		Influenza	976

	PAGE		PAGE
فروين, A.: The treatment of varicose ulcers, chronic metritis and chancroid with the salts of the ceric earths	100	of the anemias to life insurance	391
FUNAIOLI, G.: Complete transitory motor aphasia, following follicular tonsillitis, followed by logorrhea	186	GIFFORD, S. R.: Notes on the fusiform bacilli of Vincent's angina	135
GARCIA DEL DIESTRO, J., AND BARRIO, N. G.: Kala-azar in Madrid	348	GILBERT, N. C. <i>See</i> GREENE, C. W.	
GARLAND, J., AND WHITE, P. D.: Paralysis of the left recurrent laryngeal nerve associated with mitral stenosis	9	GILBERT, G. B. <i>See</i> WEBB, G. B.	
GARNETT, L.: Some cases of epilepsy and their treatment	851	GILBERT, R. <i>See</i> WADSWORTH, A. B.	
GARROD, SIR A. E.: The diagnosis of disease of the pancreas	103	GILL, C. A.: Malaria in England	496
GASKALL, J. F.: Notes on blackwater fever in Macedonia	107	GILMORE, W. M. <i>See</i> CORPER, H. J.	
GASKELL, J. F., AND MILLAR, W. L.: Studies on malignant malaria in Macedonia	27	GIRAUD, G. <i>See</i> TOURNADE, A.	
GATES, F. L.: II. Preparation of collodion sacs for use in bacteriology	936	GIVEN, H. C.: Some deductions from the statistics on the prevention of pulmonary tuberculosis	984
GATES, F. L. <i>See</i> OLITSKY, P. K.		GLATARD, M.: Intravenous injections of urotropin in typhus fever	113
GATES, F. L., AND OLITSKY, P. K.: III. Factors influencing anaerobiosis with special reference to the use of fresh tissue	940	206 cases of typhus fever....	114
GAUSS, H. <i>See</i> CORPER, H. J.		GLENN, E. <i>See</i> RAVDIN, R. S.	
GAY, F. P., AND RHODES, B.: Experimental streptococcus pneumonia and empyema....	1107	GODDARD, H. H.: The problem of the psychopathic child..	837
GERSTLEY, J. R.: The new era in pediatrics	741	GOECKEL, H. J.: The diagnosis of typhoid and paratyphoid infections	611
GETTLER, A. A., AND LINDEMAN, E.: Blood chemistry in pernicious anemia	232	GOEDDE, H.: Neural progressive muscular atrophy	767
GIBSON, C. L.: The result of operations for chronic appendicitis; a study of 555 cases	108	GOETSCH, E.: Studies on disorders of the thyroid. II. Further experiences with the epinephrin hypersensitiveness test, with especial reference to "diffuse adenomatosis" of the thyroid gland	567
GIBSON, R. B., AND MARTIN, F. T.: Administration of a pituitary extract and histamin in a case of diabetes insipidus	514	GOLDBERGER, J., WHEELER, G. A., AND SYDENSTRICKER, E.: The relation of diet to pellagra incidence	10
GIES, W. J., KAHN, M., AND LIMERICK, O. V.: The effect of tobacco on man ...	899	GOLDBLATT, H. <i>See</i> ROGOFF, J. M.	
GIFFIN, H. Z.: The relationship		GOLDMAN, A.: Hymenolepis nana; possible cercystis stage	108
		GOLDMAN, A. <i>See</i> MUND, S.	
		GOLDSMITH, A. A.: Syphilis of the stomach	1096
		GOLDSTEIN, H. I.: Hereditary hemorrhagic telangiectasia with recurring (familial) hereditary epistaxis.....	401
		GOLDMAN, A. <i>See</i> S. B. GRANT	
		GOLDWAIT, J. E.: The variations in the anatomic structure of the lumbar spine..	312
		GOODALL. <i>See</i> EARLE, H. G.	
		GOODMAN, H.: Epidermophytosis of the hands and feet	696

INDEX OF AUTHORS

xiii

	PAGE		PAGE
GORDON, A.: Conjugal syphilis of the nervous system	1048	shown in the human electrocardiogram	823
GORHAM, F. D.: Variations of acid concentration in different portions of the gastric chyme, and its relation to clinical methods of gastric analysis	621	GREENE, C. H. See SHIPLEY, P. G.	
GOSLINE, H. I.: Anatomical implications of the introspective psychology	275	GREENBERG, J. See MACHT, D. I.	
The localization of hallucinations	381	GREENFIELD, A. D. See PELLINI, E. J.	
GOTO, S.: Dissotrema synonymous with gyliauchen	147	GRENET, H., AND DROUIN, H.: Treatment of chronic tuberculous infections by the sulphates of the heavy earths	99
GOWRING, B. W.: Measles, intussusception and appendicectomy in a baby seven months old	1133	GRIFFITH, J. P. C.: Acute cerebrotocerebellar ataxia	384
GRABFIELD, G. P. See VAN ZWALUWENBURG, J. G.		GROEBNER, O. A. See RAMSEY, W. R.	
GRADENIGO, G.: Ligation of the jugular in pyemic otitis...	507	GROVER, CHRISTIE AND MERRITT: The present status of roentgen and radium treatment of cancer of the breast	1140
GRAHAM, E. A.: Asphyxia ...	33	GROVER, J. I.: Stools and their relation to the artificial feeding in infants	453
GRAHAM, J. M.: Transfusion of blood in pernicious anemia	8	GRUBE, K.: The behavior of blood sugar in cases of diabetic neuritis and neuralgia	95
GRANT, S. B., AND GOLDMAN, A.: A study of forced respiration: Experimental production of tetany	341	GRULEE, C. G., AND BONAR, B. E.: A peculiar fever of infancy probably due to depletion of the water reserve of the body	955
GRANT, S. B. See MUDD, S.		GUBERLET, J. E.: On the life-history of the chicken cestode, <i>hymenolepis carioca</i> . ..	54
GRASSMAN, K.: On the prognosis and treatment of important cardiac arrhythmias...	223	GUNewardENE, H. O.: The etiology of effort syndrome ...	763
GRASSMUCK, J.: A case of acute poliomyelitis in an adult	92	GUNZEL, R.: Notes on acquired internal hydrocephalus. ..	476
GRATIA, A.: Studies on the D'Herelle phenomenon	1012	GURLEY, C. See WILLIAMS, A. W.	
GRAY, E. A.: Spontaneous pneumothorax	717	GWERDER, J.: Artificial pneumothorax	591
GRAY, G. A.: A death due to nitric acid poisoning	321	HALDANE, J. S.: Acidosis and alkalosis	886
GRAY, G. A., AND MEYER, B. I.: Diphtheria carriers and their treatment with mercurochrome	772	HALL, J. A. See KREMERS, R. E.	
GREGG, R. See OWEN, R. G.		HALL, O. B.: Visceral ptosis..	315
GREELEY, H., AND BRERETON, M.: The bacteriology of chronic nontuberculous lung disease	1106	HALL, T. G. See FLEISHER, M. S.	
GREENE, C. W., AND GILBERT, N. C.: Studies on the response of the circulation to low oxygen tension. III. Changes in the pacemaker and in conduction during extreme oxygen want as		HALLEZ, G. L.: A contribution to the study of anemia with splenomegaly in nurslings (2 papers).....	444
		HALLISEY, J. E. See BUCKMAN, T. E.	
		HAMBURGER, W. W.: The administration of digitalis in the presence of certain acute infections	982
		HAMILL, R. C.: Coccygodynia..	979
		HAMILTON, A.: Discussion of the etiology of so-called	

	PAGE		PAGE
anilin tumors of the bladder	793	HARVIER, P. <i>See</i> LEVADITI	
HAMILTON, H. W.: Powdered litmus milk. A product of constant quality and color which can be made in any laboratory	627	HATCHER, R. A. <i>See</i> WEISS, S.	
HAMMETT, F. S.: Creatin and muscle in man	538	HAUSALTER, P., AND KAHN, P.: A case of postcommotional amyotrophy in an infant following a shell explosion. 348	348
Gynecomastia	478	HAWES, J. B.: Broncho-esophageal fistula and traction diverticulum	968
HAMMER, A. W.: The thyroid gland and thyrotoxicosis ..	1042	HAWK, P. B. <i>See</i> MILLER, R. J.	
HANNUM, E. <i>See</i> HUNTOON, F. M.		HAWK, P. B. <i>See</i> REHFUSS, M. E.	
HANSEN, O. S.: Magnesium sulphate in arsenic poisoning	725	HAYEM, G.: Exploration of the abdominal painful points by the "hammering" method	24
HANSON, W. <i>See</i> HIRSCHFELDER, A. D., BICEK, J., AND KUCERA, F. J.		HAYES, W. VAN V.: Gastric superacidity, causation and treatment	46
HANZLIK, P. J.: Comparative effects of morphin and alkaloids of the benzylisoquinolin group on cardiac muscle	943	HAZEN, H. H.: Roentgen ray treatment of cutaneous cancer	743
The liberation of free salicylic acid from salicylate in the circulation	945	HEAD, G. D., AND JOHNSON, R. A.: Carotinemia. Report of a case in an adult	1092
HANZLIK, P. J., AND WEIDENTHAL, C. M.: The plasma and blood-clotting efficiency of thromboplastic agents <i>in vitro</i> and their stability... 306	306	HEAD, H.: Disorders of symbolic thinking and expression	471
HARBITZ, F.: "Encephalitis" neonatorum	832	HEALEY, W. <i>See</i> BLANTON, W. B.	
HARBITZ, F.: The curability of tuberculous meningitis	852	HEATHCOTE, R. ST. A.: The action of caffein, theobromin and theophyllin on the mammalian and batrachian heart	544
HARPER, P.: Preliminary note on the treatment of nodular leprosy by intravenous injections of chaulmoogra oil	685	HEHEWERTH, F. H., AND KOP, W. A.: The Wassermann test in patients affected with malaria in the tropics 534	534
HARRIS, J. A., AND BENEDICT, F. G.: The variation and statistical constants of basal metabolism in men..	870	HEINEKAMP, W. J. R.: The action of adrenalin on the heart	344
HARRIS, W. H. <i>See</i> DUVAL, C. W.		HEISE, F. H., AND BROWN, L.: Adrenalin hypersensitivity in definite and unproved pulmonary tuberculosis	199
HART, DE K.: Two important roentgenoscopic signs in pyloric stenosis	370	HEKTOEN, L.: Specific precipitin for Bence-Jones protein 619	619
HART, E. B., STEENBOCK, H., AND ELLIS, R.: Antiscorbutic potency of milk powders ..	646	HELD, W.: Serumtherapy in epilepsy	94
HARTEL, F.: Results of intracranial infections in trigeminal neuralgia	282	HELMANN, M.: Transient mental derangement in child	1151
HARTMAN, H. R.: Blood changes in a gastrectomized patient simulating those in pernicious anemia	1003	HENDERSON, H. E. <i>See</i> JANNEY, N. W.	
		HENDERSON, P. S.: Tetany and the administration of alkalis	28
		HERRICK, W. W.: Serum treatment of lobar pneumonia..	775

INDEX OF AUTHORS

XV

	PAGE		PAGE
HERBST, R. H. <i>See</i> MILLER, E. M.		The slow intravenous administration of large doses of sodium citrate	813
HERNAMAN-JOHNSON, F.: A case of large penetrating ulcer of the lesser curvature	1032	HOCHSCHILD, H. <i>See</i> KLOIBER, H.	
HERTZLER, A. E.: Clinical surgery by case histories.....	376	HOLLAND, A. L.: The significance of some gastro-intestinal symptoms	1063
HEYERDAHL, S. A.: Actinomycosis, treated with radium	182	HOLLIS, A. W., AND PARDEE, I. H.: Recovery from tuberculous meningitis after treatment with intraspinal injections of antimeningococcic serum	188
HICKEY, J. P.: The diagnosis of the more common helminthic infestations of man	17	HOLMES, A. D., AND DEUEL, H. J.: Digestibility of certain miscellaneous vegetable fats	233
HIGHMAN, W. J.: Vitiligo....	919	HOLTEN, C.: The symptoms and course of tuberculous meningitis in adult consumptives	1043
HIGHMAN, W. T.: The modern treatment of acne	849	HOOKE, D. R. <i>See</i> DANZER, C. S.	
HIGLEY, H. A., AND FIELD, C. W.: Some phases of blood chemistry of practical use to the practitioner	109	HOSHIMOTO, H.: The influence of thyroid feeding upon the physiological action of the pancreas	335
HILL, A. V.: The four phases of heat-production of muscles	335	HOUGHTON, J. E. <i>See</i> BLOEDORN, W. A.	
Changes in the alkali reserve, sugar concentration, and leukocytes of the blood in experimental infections ...	1005	HOUSE, S. J.: Hemorrhagic meningoencephalitis in anthrax	377
HIRSCH, E. F.: Changes in leukocytes and alkali reserve of blood in experimental infections	935	HOWARD, T.: Percussion note of the back in the lateral position	676
HIRSCH, I. S.: A collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (gastro-intestinal tract)...	73	HOWELL, K. M. <i>See</i> LEVINSON, A.	
Collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (gastro-intestinal tract)	169	HUMBERT, C. R.: The intra-syphilis	469
Collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (the urinary tract)	261	HUMPHREY, J. F.: A study of the natural Saratoga-Nauheim baths at Saratoga Springs, N. Y.....	395
Collected abstract of the literature on roentgenology for the year 1919. (The renal tract, and bones and joints)	355	HUNT, E. L.: Syphilis of the nervous system in children	638
Collected abstract of the literature on roentgenology for the year 1919. The head	457	HUNTER, A. C.: Bacterial decomposition of salmon....	146
HIRSCHEFELDER, A. D., BICEK, J., KUCERA, F. J., AND HANSON, W.: The effect of high temperature upon the action and toxicity of digitalis....	434	HUNTOON, F. M.: Antibody studies. I. Reversal of the antigen-antibody reaction.	932
HIRSHFELD, S., AND NEUHOF, H.:		HUNTOON, F. M., AND CRAIG, S. H.: Polyvalent antibody response to multiple antigens	820
		HUNTOON, F. M., AND ETRIS, S.: II. The recovery of antibody from sensitized antigens: Technic	933
		HUNTOON, F. M., MASCUCCI, P., AND HANNUM, E.: III. Chemical nature of antibody	931

	PAGE		PAGE
HURST, A. F.: Hysterical vomiting	205	of cardiac hypertrophy and high blood-pressure in renal disease	397
HURST: Remarks on some gastro-intestinal disorders ..	891	JELGERSMA, G.: Feeble-mindedness in forensic hysteria...	855
HURST, A. F., AND ROWLANDS, R. P.: Hour-glass contraction of the stomach	1123	JELLIFFE, S. E.: Hypothyroidism and tabes dorsalis	661
HUSSEY, R. G.: General leukocytic response of the guinea pig during the reaction of artificial immunity in experimental tuberculous infection	815	JELLINEK, S.: Pathology from various electric currents...	841
HUSSEY, R. G. See MURPHY, J. B.		JENKINS, C. E.: Notes on the cultivation of the gonococcus	1117
HUSTON, J. See BUNTING, C. H.		JENSON, J. P. See EMGE, L. A.	
HUTTON, A. See WADSWORTH, A. B.		JOHN, H. J.: Pneumonia at a Base Hospital, 1918-1919..	423
IGLAUER, S.: The report of a case of laryngocele	589	JOHNSON, R. A. See HEAD, G. D.	
IRONS, E. E.: Pneumonia following influenza in the camps in the United States	592	JOHNSTONE, R. W., AND BROWNE, F. J.: A case of double congenital hydronephrosis.	898
ISAACS, S. See MACHT, D. I.		JOLTRAIN, M. J.: Urticaria from fatigue and colloidoclasia	713
ISONO, S. See TSURUMI, M.		JONES, H. P.: A demonstration of the technic followed in the determination of the basal metabolism rate—indirect method using the Benedict portable unit ...	985
JACKSON, C.: The symptomatology and diagnosis of foreign bodies in the air and food passages	870	JONES, L. R.: Comparison of the three methods of examining sputa for <i>Bacillus tuberculosis</i>	248
JACKSON, D. E., AND RAAP, G.: An experimental investigation of certain features of the pharmacological action of salvarsan	144	JONESCU, A. See CONSTANTINESCU, C. D.	
JACKSON, J. A.: Interpretation of Wassermann reaction of blood-serum in mental disease	542	JORDAN, S. M. See LAHEY, F. H.	
JACOBSON, E.: Reduction of nerspinous treatment of neurovous irritability and excitement by progressive relaxation	671	JORDAN, E. O., AND SHARP, W. B.: Effect of vaccination against influenza and some other respiratory infections.	1079
JAEGER, H. M.: Gangrenous ulcer in vaginitis from mercurial intoxication	524	Influenza studies. Effect of vaccination against influenza and some other respiratory infections	772
JAGER, R. See KOLMER, J. A.		JOSUE, O.: Congenital stenosis of pulmonary artery with interventricular communication	31
JAMES, R. F.: The prognosis of nephritis in childhood...	836	JOUGHLIN, J. L.: The diagnosis of some of the more common motor disturbances met with in children	952
JANNEY, N. W., AND HENDERSON, H. E.: Concerning the diagnosis and treatment of hypothyroidism	16	JUARISTI, V.: Metameric verrucosis	957
JANOWSKI, M. W.: Neuralgias of the head.....	474	KAHAR: A double-headed monster	951
JAPIOT AND BUSSY: Radiotherapy in interstitial keratitis.	1137	KAHN, E.: Constitution, hereditary biology and psychiatry	90
JAWEIN, G.: On the causation			

	PAGE		PAGE
KAHN, M. <i>See</i> GIES, W. J.		Pulmonary complication of	
KAHN, M.: Angina pectoris of		paratyphoid fever, with a	
diabetes	588	report of four cases	31
KATZ, L. N.: Factors modify-		KLOIBER, H., AND HOCHSCHILD,	
ing the duration of ventri-		H.: Roentgenologic dem-	
cular systole	586	onstration of the heart in	
KAHN, P. <i>See</i> HAUSALTER, P.		pericardial effusion	560
KALB, G.: Tuberculous empy-		KODAMA, R.: Ocular reaction	
ema	781	in anaphylaxis	343
KAY, W. E., AND BROCK, S.: The		KOHL, E.: Goiter of the tongue	
white adrenal line (Ser-		599	
gent); its clinical signi-		KOHLER, G. F., AND PALMER, D.:	
ficance	975	Intestinal stasis	831
KEHL, R.: Treatment of acne		KOLLS, A. C.: Continuous blood-	
vulgaris	687	pressure tracings in man.	
KELLER, R. F. <i>See</i> VAN SLYKE,		An apparatus	438
L. L.		Indirect method for the de-	
KELLEY, M. F. <i>See</i> COCA, A.		termination of blood-pres-	
F.		sure in the unanesthetized	
KERRISON, P. D.: Diseases of		dog	438
the ear (otitis media)	800	KOLMER, J. A., DAVIS, L. C., AND	
KEYES, A. B.: Focal infections		JAGER, R.: The influence	
and their clinical relations		of chaulmoogra oil on the	
to metastases in the female		tubercle bacillus	684
genitalia	517	KOLMER, J. A., AND SANDS, J.	
KEYES, E. L. JR.: Problems		R.: Chemotherapeutic stu-	
concerning urinary calculi.		dies with ethylhydrocuprein	
Problems concerning urinary		hydrochlorid in experiment-	
calculi	1066	al pneumococcus pleuritis.	
KIELEY, C. E.: James' theory		941	
of the emotions in relation		KOLMER, J. A. <i>See</i> SCHMABERG,	
to the adrenal glands	856	J. F.	
KILKER, C. H. <i>See</i> McCORD, C.		KOONS, H. H.: Some observa-	
P.		tions on the use of vaccines	
KING, C. S.: Sigmoid impaction		and glucose in the treat-	
—its significance, pathology		ment of influenza and bron-	
and treatment	1139	chopneumonia	311
KING, E. L.: Non-interference		KONINOW, M. J.: Pneumonia	
in the treatment of puer-		in a woman with an ha-	
peral and postabortal infec-		bitual high blood-pressure.	
tions	316	30	
KING, G. <i>See</i> LEWIS, K. M.		KOP, W. A. <i>See</i> HEHEWERTH,	
KINGERY, L. B.: The etiology		F. H.	
of common warts. Their		KOPP, J.: Radium therapy in	
production in the second		lupus vulgaris	753
generation	491	KOPATSCHEK, F. <i>See</i> WERDT, F.	
KIRBY, G. H.: Alcohol and		KOSTRZEWSKI, J.: Investiga-	
syphilis as causes of mental		tions concerning the char-	
diseases	660	acteristics of blood-serum in	
KIRKLIN, B. R.: A plea for a		individuals inoculated a-	
routine x-ray examination		gainst rabies	322
of the gall-bladder region		KOUNDJY, P.: Treatment of	
in every chronic abdomen..		of salivary fistulae by mas-	
751		sage and hot air	609
KIRSCHBAUM, W.: Tuberculosis		KRAF, H. N. <i>See</i> NILES, G. M.	
of the central nervous sys-		KRAFT, A.: Hemolytic strep-	
tem	857	tococci of the appendix ver-	
KITABAYASHI, S.: Concerning		miciforms	542
heterotopy of the plexus		KRAFT, A., AND LEITCH, N. M.:	
choroidei	93	The influence of morphin in	
KLIGLER, I. J. <i>See</i> NOGUCHI, H.		experimental septicemia ..	963
KLEIN, T., AND TORREY, R. G.:		KRAMER, B.: Direct quanti-	
		tative determination of po-	

	PAGE		PAGE
tassium and sodium in small quantities of blood...	52	LANDENBERGER, L. L. <i>See</i> LEVINSON, A.	
KRAUS, W. M. <i>See</i> DAVIS, T. K.		LANE, W. A. <i>Sir.</i> : Colectomy..	990
KRAUSS, W.: The whys and wherefores of unreliable Wassermann reports	580	LANTUEJOL, P. <i>See</i> VARIOT, G.	
KREMERS, E. D.: Some personal experiences with epidemic respiratory diseases in the Army, with some remarks on methods of control	201	LAPENTA, V. A.: Pathogenesis and physiopathology of gall-bladder and biliary-tract lesions	602
KREMERS, R. E., AND HALL, J. A.: On the identification of citric acid in the tomato	67	LAUBER, L.: Dysentery epidemic at Mannheim	127
KRUMBHAAR, E. B., AND MUSSER, J. H., JR.: The catalase content of the blood in different types of anemia..	392	LAUBRY. <i>See</i> VAQUES	
KRUMWIEDE, C., AND NOBLE, W. C.: A note on the claim that agglutinins are lipoidal in nature	828	LEAKE, W. H. <i>See</i> MACKENZIE, G. M.	
KRUMWIEDE, C. <i>See</i> PARK, W. H.		LEENHARDT AND SENTIS: Congenital myotonia (Oppenheim) and Werding-Hoffman's disease are the same condition	548
KUCERA, F. J. <i>See</i> HIRSCHFELDER, A. D., BICEK, J., AND HANSON, W.		LEIGHTON, A. P.: Luteum extract, a further report	998
LABBE, M.: Disturbed protein and fat metabolism and the origin of diabetic acidosis.	429	LEITCH, N. M. <i>See</i> KRAFT, A.	
LADD, W. S. <i>See</i> LEVINE, S. A.		LEMAIRE, H., AND STIASSNIE: Case of chronic meningitis of the vomiting type	550
LAHEY, F. H., AND JORDAN, S. M.: Basal metabolism as an index of treatment in diseases of the thyroid	851	LeMONACHO, D.: Injections of saccharose	1071
LAHM, W.: Congenital etiology of salpingitis isthmica nodosa	869	LEON, N.: A case of urethral myiasis	963
LAIGNEL-LAVASTINE: Pathologic histology of ganglion of Wrisberg.....	433	LEOPOLD, R. S.: A case of massive lipoma of the mediastinum	32
LAIGNEL-LAVASTINE: Note on morphology of ganglion of Wrisberg	432	LERI, A.: Hemisraniositis....	838
LAMBRIGHT, G. L.: Leukemia: type diagnosis by oxydase method of blood staining ..	601	LERICHE: Treatment of Jacksonian epilepsy due to old injuries of the skull	190
Urticaria, classification of types and its causes	1007	LEVADITI AND HARVIER, P.: The virus of encephalitis lethargica	189
LAMSON, P. D.: The part played by the liver in the regulation of blood volume and red corpuscule concentration in acute physiological conditions	431	LEVADITTI, C. <i>See</i> MARIE, A.	
LAMSON, P. D., AND ROCA, J.: The liver as a blood concentrating organ	978	LEVIN, I., AND LEVINE, M.: Malignancy of the crown-gall and its analogy to animal cancer	340
		LEVIN, S.: One thousand one hundred forty-six goiters in one thousand seven hundred eight-three persons	694
		LEVINE, M. <i>See</i> LEVIN, I.	
		LEVINE, S. A.: The diagnosis of paralytic or early poliomyelitis	1022
		LEVINE, S. A., AND LADD, W. S.: Pernicious anemia. A clinical study of one hundred and fifty consecutive cases with special reference to gastric anacidity	984
		LEVINSON, A., LANDENBERGER, L. L., AND HOWELL, K. M.: Cholesterol in cerebrospinal fluid	1053
		LEVY, L. H.: Diet as a post-	

	PAGE		PAGE
operative factor in gastro-intestinal disorders	209	LOVE, J. D.: Overmedication in infancy and childhood	257
The mouth from a gastroenterological viewpoint	607	LOWSLEY, O. S.: The role of the prostate and seminal vesicles in arthritis	790
LEWIN, J.: Problems of hysteria	286	LUDEN, G.: Chronic carbon monoxid poisoning. Its immediate and subsequent manifestations	878
LEWIS, K. M., KING, G., AND DINEGAR, R.: Epidemic encephalitis: observations on a series of five cases: autopsy findings: predominating symptomatology: relation to influenza; personal conclusions	1054	LUND, F. B., AND FOLEY, J. A.: Hemorrhage from the stomach and esophagus	605
LEWIS, N. D. C.: The pathology of influenza as seen in those with chronic mental disease.	1150	LUND, C. C., SHAW, L. A., AND DRINKER, C. K.: Quantitative distribution of particulate material manganese dioxid) administered intravenously to the dog, rabbit, guinea pig, rat, chicken, and turtle	937
LEWIS, W. H., AND WEBSTER, L. T.: Migration of lymphocytes in plasma cultures of human lymph-nodes	624	LUPI, C.: Latent epilepsy	191
L'HERMITTE, J.: Epidemic hiccough	195	LUTTINGER, P.: The use of pertussis vaccine	774
LIMERICK, O. V. See GIES, W. J.			
LINDE, F. G.: A case of dislocated semilunar cartilage .	601	MCCLENDON, J. F.: Nutrition and public health with special reference to vitamins..	411
LINDEMAN, E. See GETTLER, A. O.		MCCCLURE, C. W., REYNOLDS, L., AND SCHWARTZ, C. O.: On the behavior of the pyloric sphincter in normal man..	425
LINTZ, J.: Elephantiasis with reference to syphilis	582	MCCCLURE, C. W., AND REYNOLDS, L.: Observations on the behavior of the normal pyloric sphincter in man.....	558
Elephantiasis with reference to syphilis	867	MCCONNELL, W. J.: Industrial dermatosis among printers	794
LISSNER, H. H.: Whispered voice sound, an aid to early diagnosis of pneumonic consolidation	200	MCCORD, C. P., AND KILKER, C. H.: Zinc chlorid poisoning: Report of outbreak among workers in a wood preserving industry	492
LINDSTEDT, D. E.: Etiology and pathogenesis of sciatica ...	106	MCCULLOCH, H.: Studies on the effect of diphtheria on the heart	70
LOEB, L.: Causes and definition of cancer	228	MCCULLOUGH, J. W. S.: The necessity of a publicity campaign against cancer	484
LOEPER, M., AND WAGNER, C.: Gastric disturbances following cerebral concussion	50	MCDONAGH, J. E. R.: The treatment of bilharziasis with antimony	26
LOEPER, FAROY, AND TONNET: The proteolytic ferment of the tumors and the blood of patients suffering with cancer	314	McEWEN, E. L.: Chronic focal infections as affecting the skin	519
LOEWE, L., AND ZEMAN, F. D.: Cultivation of a filterable organism from the nasopharyngeal washings in influenza	614	McELROY, J. B.: Etiology and diagnosis of nephritis	511
LOURIA, H. W.: The blood urea nitrogen in acute intestinal obstruction	721	MCGUIGAN, H.: The action of cascara sagrada.....	407
LOUSTE, A.: Considerations about the pathological physiology, and pathogenesis of urticaria	128	McINTYRE, A. P. See McIntyre, H. D.	
		McINTYRE, H. D., NORTH, E. A.,	

	PAGE
AND MCINTYRE, A. P.: Comparative values of complement-fixation methods in syphilis	579
McKINLAY, C. A.: Behavior of blood-pressure during the use of the stomach tube...	387
McLAUGHLIN, A. J.: Epidemiology and etiology of influenza	29
Standardization of municipal health organization	314
McMASTER, P. D. <i>See</i> ROUS, P.	
McMASTER, P. D., AND ROUS, P.: The biliary obstruction required to produce jaundice	940
McMURRAY, T. E.: The benzyl benzoate treatment of whooping cough	159
McNAIR, J. B.: Susceptibility to dermatitis from rhus diversiloba	919
McNEIL, C.: Anaphylaxis in man, its bearing upon hay-fever, animal and food idiosyncrasy, and asthma	1077
MACALPINE, J. B.: Symptomless hematuria: A plea for early investigation	913
MACCARTY, W. C., AND CORKERY, J. R.: Early lesions in the gall-bladder	218
MACCARTY, W. C., AND MAHLE, A. E.: Relation of differentiation and lymphocytic infiltration to post-operative longevity in gastric carcinoma	1108
MACDONALD, N. <i>See</i> CHALMERS, A. J.	
MACEACHERN, J. S.: The treatment of diffuse suppurative peritonitis	884
MACKENZIE, G. M., AND LEAKE, W. H.: Relation of antibody and antigen to serum susceptibility	1010
MACLEAN, N. J.: The indication for nephrectomy in renal stone	916
MacNEAL, W. J.: Pellagra	972
MACHT, D. I.: On the absorption of local anesthetics through the genito-urinary organs	538
MACHT, D. I., AND BLOOM, V.: Physiological and pharmacological studies of the prostate gland	540
MACHT, D. I., GREENBERG, J., AND ISAACS, S.: The effect of	

	PAGE
some antipyretics on the acuity of hearing	338
MACKENZIE, Sir J.: The soldier's heart and war neurosis. A study in symptomatology	183
MACNIDER, W. de B.: A preliminary paper on the relation between the amount of stainable lipoid material in the renal epithelium and the susceptibility of the kidney to the toxic effect of the general anesthetics....	825
MAGATH, T. B.: A test for early renal insufficiency	1111
MAHLE, R. E.: Adenomyoma of the fallopian tube	914
MAHLE, A. F. <i>See</i> BRODERS, A. C.	
MAHLE, A. E. <i>See</i> MacCARTY, W. C.	
MAONEY, H. E.: A case of purpura during serum disease	19
MARANON, G.: Diabetes insipidus as a hypopituitary syndrome	1146
MARANON, G., ET BONILLA, E.: Clinical history of a case of fatal obesity	493
MARFAN, A. B.: Asthma in infancy	69
Choleric form diarrhea in infants. Etiology and pathogenesis	546
Cows' milk diarrhea in infants	163
Periodic (or cyclic) vomiting with acetoneuria	631
The states of malnutrition in early infancy—hypothrepsia and athrepsia	1126
Treatment of ordinary (non-infectious) diarrhea in artificially fed infants....	449
MARFAN, A. B., AND RABUTEAU, N.: A band of scleroderma of the left lower limb with zoniform vitiligo of the right half of the abdomen in a syphilitic girl	353
MARIE, A., AND LEVADITI, C.: General paralysis and its causes	575
MARSH, P. L. <i>See</i> NEWBURGH, L. H.	
MARTIN, E. G. <i>See</i> BAUMBERGER, J. P.	

	PAGE
MARTIN, F. T. <i>See</i> GIBSON, R. B.	
MARTIN, W.: Tuberculosis of the lymphatic vessels of the leg and the second metacarpal bone. Secondary elephantiasis	875
MARTINEZ, F. F.: Abdominal arteriosclerosis and the obliteration of the mesenteric arteries	987
MASCUCCI, P. <i>See</i> HUNTOON, F. M.	
MASON, E. C.: The pharmacologic action of lead in organic combination	1089
MASON, E. C., AND PIECK, C. E.: A pharmacological study of benzyl benzoate	426
MASON, E. H., AND EMMONS, R. V. B.: Value of the intrapalpebral Mallein test in the diagnosis of glanders..	250
MATSON, R. W. <i>See</i> BISAILLON, M.	
MAUNSELL, C. B.: Some of the clinical symptoms of appendicitis compared with the lesions found at operation	26
MAXWELL, S. S.: Labyrinth and equilibrium. I. A comparison of the effect of removal of the otolith organs and of the semi-circular canals...	333
MAYER-GROSS, W.: Cocainism described by an addict	324
MEANS, J. H., BOCK, A. V., AND WOODWELL, M. N.: Studies of the acid-base equilibrium in disease from the point of view of blood cases	628
MEANS, J. H., AND WOODWELL, M. N.: Remarks on standards for normal basal metabolism	871
MEEK, W. J., AND EYSTER, J. A. E.: Reactions to hemorrhage	698
MEGGENDORFER, F.: Clinical and genealogic studies on moral insanity	925
MEISSER, J. G. <i>See</i> BUMPUS, H. C.	
MELAMET, S.: Chemotherapy of tuberculosis	300
MELLON, R. R.: Life cycles of the bacteria and their possible relation to pathology. 141	
MELTZER, S. J., AND AUER, J.: On the duration of con-	

striction of blood-vessels by epinephrin	946
MENDEL, L. B. <i>See</i> OSBORNE, T. B.	
MENDEL, L. B. <i>See</i> OSBORNE, T. B.	
MENNINGER, K. A.: Influenza and epilepsy: further studies upon the relation of mental disease and influenza	1055
MERRITT, <i>See</i> GROVER.	
MEYER, B. I. <i>See</i> GRAY, G. A.	
MEYER, J., PILOT, I., AND PEARLMAN, S. J.: IV. The incidence of pneumococci, hemolytic streptococci and influenza bacilli (Pfeiffer) in the nasopharynx of tonsillectomized and nontonsillectomized children	1026
MEYER, K. F. <i>See</i> PORTER, L.	
MEYER, W. H.: Roentgen therapy in superficial malignancy	655
MILLAR, W. L. <i>See</i> GASKELL, J. F.	
MILLER, E. M., AND HERBST, R. H.: Papillary epithelioma of the kidney pelvis	700
MILLER, E. M. <i>See</i> PHEMISTER, D. B.	
MILLER, R. J., BERGEIM, O., REHFUSS, N. E., AND HAWK, P. B.: Gastric response to foods. X. The psychic secretion of gastric juice in normal men. XI. The influence of tea, coffee, and cocoa upon digestion	235
MINNIG, A.: Vaccines in the treatment of tuberculosis..	982
MINOT, G. R.: Chronic hemolytic anemia. "The pernicious anemia of pregnancy" 923	
MIRALLIE, M. C.: Contribution to the study of the mode of onset of general paralysis. 480	
MISHULOW, L. <i>See</i> COOPER, G. M.	
MITSUJI, K. <i>See</i> COCA, A. F.	
MODIGLIANI, E., AND DE VILLA, S.: Intracutaneous reaction for early diagnosis in pertussis	832
MOLA, A.: On the results of artificial feeding in the nursery of Montevideo.....	452
MONTENEGRO, J. V.: Seaside sanatoria in the treatment of tuberculosis in children 644	

	PAGE		PAGE
MOORE, F. D.: Precancerous stage	227	The etiology of acute inflammations of the nose, pharynx and tonsils	678
MOORE, J. E.: The cerebrospinal fluid in treated syphilis	565	MURPHY, J. B. See NAKAHARA, W.	
MORGAN, H. J.: An atypical bacillus paratyphosus B infection	1002	MURPHY, J., HUSSEY, R. G., STURM, E., AND NAKAHARA, W.: 2. Effect of induced cellular reaction on the fate of cancer grafts. IV. Studies on lymphoid activity	815
MORLEY, W. H.: The interstitial gland—what it is and its supposed function	574	Studies of x -ray effects. VI. Effect of the cellular reaction induced by x -rays on cancer grafts	743
MORQUIO, L.: Acute meningitis and tuberculous meningitis. Two fatal cases of chorea ..	643	MURPHY, J. B., NAKAHARA, W. AND STURM, E.: Studies on lymphoid activity. V. Relation between the time extent of lymphoid stimulation induced by physical agents and the degree of resistance to cancer in mice ..	819
MORRIS, M. F.: Hyperthyroidism	663	MURPHY, J. B., WITHERBEE, W. D., CRAIG, S. L., HUSSEY, R. G., AND STURM, E.: Induced atrophy of hypertrophied tonsils by roentgen ray	562
MORRIS, G. B. See PORTER, L.		MURPHY, J. B., HUSSEY, R. D., WITHERBEE, W. D., CRAIG, S. L., AND STURM, E.: Effect of small doses of x -rays on hypertrophied tonsils and other lymphoid structures of the nasopharynx	1039
MORRISON, T. H. See FRIEDENWALD, J.		MUSSER, J. A.: Notes on gastric secretions in neurocirculatory asthenia	247
MORTENSEN, M. A. See PRITCHARD, J. S.		MUSSER, J. H.: The leukocytes after hemorrhages	1001
MOSCHCOWITZ, E.: Clinical and anatomic relations in chronic nephritis	15	MUSSER, J. H., JR. See KRUMBHAAR, E. B.	
MOSENTHAL, H. O.: The influence of protein food on increased blood-pressure	535	MUTCH, J. See MUTCH, N.	
MOSHER, E. M.: The mobile V-colon, its causes, effects and correction	798	MUTCH, N., AND MUTCH, J.: Studies on the bacteriology of the alimentary tract ...	829
MOTT, F. W.: Normal and morbid conditions of the testes from birth to old age in one hundred asylum and hospital cases	64	MYERS, V. C.: Chemical changes in the blood in disease. I. Nonprotein and urea nitrogen	52
Normal and morbid conditions of the testes from birth to old age in one hundred asylum and hospital cases....	243	Chemical changes in the blood in disease. III. Creatinin. ...	151
MOTTEAM, J. C.: Histological changes in the bone marrow of rats exposed to the radiation from radium.....	467	Chemical changes in the blood in disease. IV. Blood sugar	152
The red cell blood content of those handling radium for therapeutic purposes	219	Chemical changes in the blood in disease. V. Carbon dioxide combining power	240
MOTZFELD, K.: Treatment of diabetes	487		
MOZINGO, A. E.: The surgical treatment of empyema by closed method	973		
MUDD, S., GOLDMAN, A., AND GRANT, S. B.: Reactions of the nasal cavity and post-nasal space to chilling of the body surface. I. Vasomotor reactions	1011		
GOLDMAN, A.: The etiology of acute inflammations of the nose, pharynx, and tonsils	598		
MUDD, S., GRANT, S. B., AND			

	PAGE		PAGE
Chemical changes in the blood in disease. VI. Cholesterol	329	diabetes mellitus. Second paper: Blood sugar	773
Chemical changes in the blood in disease. VII. Chlorids..	331	NEWMAN, B. T.: Shop standards and fatigue	486
MYERS, V., AND CROLL, H. M.: The determination of carbohydrates in vegetable foods	624	NEWS ITEM: New serum for tuberculosis	418
NAGAYAMA, T.: Renal activity and the acid-base equilibrium	337	Spahlinger's treatment of tuberculosis	416
NAKAHARA, W. See MURPHY, J. B.		Spahlinger treatment	420
NAKAHARA, W., AND MURPHY, J. B.: The lymphocyte in natural and induced resistance to transplanted cancer. VI. Histological comparison of the lymphoid tissue of naturally immune and susceptible mice	621	NICHOLS, J. B.: Benign decidua tumors of the uterus	524
Studies of x -ray effects. VII. Effects of small doses of x -rays of low penetration on the resistance of mice to transplanted cancer	748	NICOLAYSEN, K.: Irritation of the vagus and hemorrhagic erosions of the stomach	245
NAVARRO, J. C.: Cardio-cirrhosis (Hutinel's or Pick's disease). Etiology	1125	NILES, G. M.: Vomiting	809
NEILSON, C. H., AND WHEELON, H.: Studies on the resistance of the red blood-cells. I. Resistance of the red blood-cells in health to the hemolytic action of sapotoxin	1116	NILES, G. M., AND KRAE, H. N.: Some observation of the nonsurgical drainage of pathologic gall-bladders	415
Studies on the resistance of the red blood-cells II. The resistance of the red blood-cells in disease to the hemolytic action of sapotoxin	1110	NILES, W. L.: The serum treatment of lobar pneumonia	776
Studies on the resistance of the red blood-cells. III. The relation of cholesterol to the resistance of the red blood-cells to the hemolytic action of sapotoxin	1114	NISHIDA, Y., AND PETROFF, S. A.: Serological studies on tuberculosis	148
NESSA, N. J.: X-ray diagnosis of osteomyelitis	1031	NIXON, C. E., AND SWEETSER, T. H.: A report of an epidemic with certain cases presenting the picture of meningo-encephalitis	1054
NETTER, A.: Contagiousness of lethargic encephalitis	379	NIXON, P. I.: Acute dilatation of the stomach following gynecological operations	1102
NEUHOF, H. See HIRSHFELD, S.		NOBECOURT, P., AND SCHREIBER, G.: The birth-rate and infant mortality	346
NEUMANN, J.: New diagnostic method in scarlet fever	215	NOBLE, W. C. See KRUHWIEDE, C.	
NEVIN, M. See WILLIAMS, A. W.		NOGUCHI, H. See COHN, A. E.	
NEWBURG, L. H. See SQUIER, T. L.		NOGUCHI, H.: Etiology of yellow fever. Serum treatment of animals infected with leptospira icteroides	143
NEWBURGH, L. H. AND MARSH, P. L.: The use of a high fat diet in the treatment of		NOGUCHI, H., AND KLIGLER, I. J.: Experimental studies of yellow fever in northern Peru	624
		Immunology of the Peruvian strains of leptospira icteroides	627
		NORMAN, N. P.: A modern method of colonic drainage	714
		NORRIS, G. W.: Human arteriosclerosis: some remarks concerning its etiology and symptomatology	222
		NORTH, E. A. See MCINTYRE, H. D.	
		NOVAK, E.: The role of the endocrine glands in certain menstrual disorders	327
		NUZUM, J. W.: A critical study	

	PAGE		PAGE
of an organism associated with a transplantable carcinoma of the white mouse.	1119	proteins of the barley, oat, rye, and wheat kernels ...	249
OCHSNER, A. J.: Pernicious anemia	922	Nutritive factors in plant tissues. III. Further observations on the distribution of water soluble vitamin...	337
OELZE, F. W.: On the treatment of tertiary syphilis with diiodyl	37	OSBORNE, E. D. <i>See</i> STOKES, J. H.	
OILLE, J. A.: Functioning of the heart in cardiac disease	398	OSTI, G.: Slowing of the pulse in Graves' disease during sleep	323
O'KEEFE, E. S.: Eczema in the breast-fed baby, and protein sensitization	1023	OWEN, L. J.: Syphilis as an etiologic factor in nodular cirrhosis of the liver	584
OLITSKY, P. K. <i>See</i> GATES, F. L.		OWEN, R. G., AND GREGG, R.: Lactose—determination of in milk by colorimetric method	719
OLITSKY, P. K., AND GATES, F. L.: Experimental studies on the nasopharyngeal secretions from influenza patients. II. Filterability and resistance to glycerol	615	OWEN, S. A., AND LAKE, N.: Report of a case of antenatal intestinal obstruction, with some remarks on other forms of intestinal obstruction in infants.....	447
Experimental studies of the nasopharyngeal secretions from influenza patients. III. Studies of the concurrent infections	949	PADDOCK, R. <i>See</i> ALEXANDER, H. L.	
Experimental studies of the nasopharyngeal secretions from influenza patients. IV. Anaerobic cultivation	948	PAGNIEZ, P.: Attacks of unilateral amaurosis due to the abuse of tobacco, with changes in the color of the iris	409
Experimental studies of the nasopharyngeal secretions from influenza patients. V. Bacterium pneumosintes and concurrent infections..	1018	Some treatments for migraine	983
I. Transmission experiments with nasopharyngeal washings	947	PALMEE, D. <i>See</i> KOHLE, G. F.	
OLIVER, J.: I. Mechanism of urea excretion	626	PALMER, G. T.: The taking of temperature in the diagnosis and treatment of the tuberculosis	1087
OLMSTEAD, W. H.: Availability of carbohydrate in certain vegetables	67	PAILLARD: <i>See</i> CASTAIGNE.	
OPHULS, W.: Arteriosclerosis and cardiovascular disease. Their relations to infectious diseases	505	PALLEGIOIX, J.: <i>See</i> COMBY, J.	
Relationship between trauma and malignant disease from an industrial viewpoint ...	791	PARDEE, H. E. B.: Determination of the ventricular predominance from the electrocardiogram	245
OPIE, E. L.: First infection with tuberculosis by way of the intestinal tract.....	302	PARDEE, I. H. <i>See</i> HOLLIS, A. W.	
OPIE, E. L., AND ANDERSON, H.: First infection with tuberculosis by way of the lungs	303	PARHON, J.: Cardiorespiratory correlations in neuropathology	378
OPPERT: Some points in the technic of radium therapy	370	PARK, E. A.: A case of hypersensitiveness to cow's milk.	444
OSBORNE, T. B., AND MENDEL, L. B.: Nutritive value of the		PARK, W. H., AND COOPER, G.: V. Accidental inoculation of influenza bacilli on the mucous membranes of healthy persons with development of infection in at least one	726
		PARK, W. H., WILLIAMS, A. W., AND KRUMWIEDE, C.: Mi-	

INDEX OF AUTHORS

XXV

	PAGE		PAGE
crobial studies on acute respiratory infection with especial consideration of immunological studies	533	of protective substances against morphin.....	437
PARKER, F., JR. <i>See</i> THOMAS, H. M., JR.		PELS-LEUSDEN: Hydrocele ...	716
PARKER, G.: Etiologic and therapeutic considerations in arthritis	1099	PEMBERTON, R.: The use of diet in the treatment of chronic arthritis	981
PARKER, H. L.: Juvenile tabes	284	PENDERGRASS, E. P.: A study of polycythemia vera with splenomegaly, with a report of two cases, and a discussion of the treatment by the roentgen rays.	1030
PARRISIUS, W.: A warning of overdose of <i>x</i> -ray in cases of myelonic leukemia	653	PERRY, E. E. <i>See</i> BAUMBERGER, J. P.	
PARSON, J. P. <i>See</i> COWIE, D. M.		PETERSON, W. F.: The focal reaction	799
PAULY, R.: A dorsal point of tenderness in hepatic colic.	225	PETREN, G.: Studies on acute nephritis	15
PEABODY, F. W.: A report of the Harvard infantile paralysis commission on the diagnosis of acute cases in 1920, with special reference to the incidence of cases without paralysis	1023	PETROFF, S. A. <i>See</i> NISHIDA, Y.	
PEABODY, F. W., STURGI:, C. C. TOMPKINS, E. M., AND WEARN, J. T.: Epinephrin hypersensitiveness and its relation to hyperthyroidism	1050	PETTIT, J. A.: Bearing of the cancer problem on the prolongation of human life...	485
PEARCE, L. <i>See</i> BROWN, W. H.		PFEIFFER, C.: Emotional exophthalmic goiter and syphilis	405
PEARCE, L., AND BROWN, W. H.: Chemotherapy of trypanosome and spirochete infections. Biological series. II. The therapeutic action of n-phenylglycinamid-parsonic acid in experimental trypanosomiasis of mice, rats and guinea pigs. III. The therapeutic action of n-phenylglycinamid-parsonic acid in experimental trypanosomiasis of rabbits....	63	PHILIP AND FEY: Gastric perforation and streptococcus peritonitis in a nursing one month of age	165
PEARLMAN, S. J. <i>See</i> MEYER, J.		PHEMISTER, D. B., MILLER, E. M., AND BONAR, B. E.: The effect of phosphorus in rickets	495
PEARLMAN, S. J. <i>See</i> PILOT, I.		PHILLIPS, J.: Whooping cough contracted at the time of birth with report of two cases	545
PEARSON, C. R.: Is there an ideal treatment of morphinism?	184	PHOCAS, A. G.: influence of calcium on glucosuria....	408
PEARSON, J. W. <i>See</i> SHIPLEY, P. G.		PICEK, C. E. <i>See</i> MASON, E. C.	
PECK, G. A.: Treatment of abortion complicated by sepsis.	902	PILOT, I.: V. The diphtheria bacilli and diphtheroids of the adenoids and tonsils ..	1021
PELFORT, C.: Measles and whooping-cough	345	PILOT, I. <i>See</i> MEYER, J.	
PELLINI, E. J.: The ambulatory patient with cardiac disease with especial reference to digitalis therapy.	503	PILOT, I., AND PEARLMAN, S. J.: Bacteriologic studies of the upper respiratory passages. I. Hemolytic streptococci of the adenoids. II. The pneumococci and nonhemolytic streptococci of the adenoids and tonsils. III. The influenza bacilli (Pfeiffer) of the adenoids and tonsils	1014
PELLINI, E. J., AND GREENFIELD, A. D.: Narcotic drug addiction. I. The formation		PISCHEL, D. <i>See</i> BURKE, V.	
		PLEWKA, W.: Pathogenesis of ulcerative parotitis in the new born	952
		PONCE DE LEON, M.: Measles and diphtheria	345

	PAGE		PAGE
POPPENS, P. H.: The bacteriology of the fasting stomach and duodenum. A study based on the findings in thirty dogs	818	RAIZISS, G. W. <i>See</i> SCHMABERG, J. F.	
PORCHER, C.: Milk retention..	441	RAMIREZ, M.: Protein sensitization in eczema	310
POROT, A.: Meningeal reaction in malaria	187	RAMIREZ, M. A. <i>See</i> SNYDER, R. G.	
PORTER, L., MORRIS, G. B., AND MEYER, K. F.: Certain nutritional disorders of children associated with a putrefactive intestinal flora ..	166	RAMOND, L.: Ambulatory form of lethargic encephalitis ...	190
PORTER, W. T.: The seasonal variation in the growth of Boston school children....	446	RAMOND, L. <i>See</i> ACHARD, C.	
POTTER, I. W.: Version	992	RAMSEY, W. R., AND GROEBNER, O. A.: Further progress in the study of the relative efficiency of the different mercurial preparations ...	351
POVITSKY, O. R., AND DENNY, H. T.: IV. Further studies on grouping of influenza bacilli with special reference to permanence of type in the carrier	948	RAPOPORT, F. H. <i>See</i> BARBOUR, H. G.	
PRATT, J. H. <i>See</i> WEST, H. F.		RAYDIN, R. S., AND GLENN, E.: The transfusion of blood, with report of 186 transfusions	974
PRAUSNITZ, C.: The Weil-Felix reaction and X19 in immune serum agglutination	244	RAW, N.: An attenuated tubercle vaccine	140
PRITCHARD, J. S., AND MORTENSEN, M. A.: Pulmonary findings due to circulatory changes	305	RAWLS, R. M.: The status of intrauterine stem pessary based on a study of 205 cases with end results in 117 cases	1061
PRUET. <i>See</i> ALDERSON.		RAY, H. M.: Primary ovarian and primary abdominal pregnancy	910
PRYER, R. W.: The etiology of scarlet fever. III. The alkali-producing organisms in scarlet fever	1113	REGAUD: Preliminary ideas in the practice of radium therapy in regard to the local applications of emanation and of radium.....	468
QUIGLEY, J. K.: Hematuria in pregnancy	1078	REHAN, R. J.: Triple calcium phosphate as a stimulant for bone reproduction (healing) in fractures	1088
QUIMBY, W. A.: The co-existence of gall-bladder and appendiceal infection	1086	REHFUSS, M. E.: Analysis of chronic gastritis	996
RAAP, G. <i>See</i> JACKSON, D. E.		REHFUSS, M. E., AND HAWK, P. B.: Gastric analysis, the interdigestive phase or the principles governing the phenomena of a resting stomach	729
RABUTEAU, N. <i>See</i> MARFAN, A. B.		REHFUSS, N. E. <i>See</i> MILLER, R. J.	
RACKEMANN, F. M.: The relation of sputum bacteria to asthma	229	REID, W. D.: Specific aortitis. 4	
RADASCH, H. E.: Superfetation or superfecundation	905	Multiple serositis	121
RADIN, M. J.: Chronic lung disease following the influenza pandemic of 1918-1919	421	The auricular heart sounds..	705
RAEDER, O. J.: Feeble-mindedness in hereditary neurosyphilis	955	REID, W. D.: The first heart sound and the presystolic murmur	500
RAHN, O.: A natural classification of bacteria	243	Visceroptosis as a cause of "stomach trouble".....	701
		REISS, J. <i>See</i> CROHN, B. B.	
		REMER. <i>See</i> WITHERBEE.	
		RENAUD, M.: Provocation of the beneficial crisis in the	

INDEX OF AUTHORS

xxvii

	PAGE		PAGE
primitive pneumopathies by the intravenous injection of anti-pneumococcal serum and adrenalin. Statistics, results. Attempt at interpretation	1080	Sulphur in the cancerous liver	388
RENSCH, O. B. See CORPER, H. J.		ROBINSON, B.: The inhalation treatment in pulmonary tuberculosis	198
RETZLAFF, K.: Hirschsprung's disease	133	ROBINSON, G. C.: The value of large single doses of digitalis in the treatment of heart disease	101
REVESZ, V. See SZERB, S.		ROCA, J. See LAMSON, P. D.	
REWALE, R. K.: Vaccine treatment of pertussis	1130	RODRIGUEZ, B.: Our personal results in intraspinal treatment of neurosyphilis	371
REYMAN, G. C.: On the placental transmission of so-called normal anti-bodies..	430	ROGERS, SIR L.: Further work on antimony intravenously in filariasis	140
REYNOLDS, L. See McCLURE, C. W.		ROGOFF, J. M. AND GOLDBLATT, H.: Attempt to detect thyroid secretion in blood obtained from the glands of individuals with exophthalmic goiter and other conditions involving the thyroid.	1055
REYNOLDS, L., See McCLURE, C. W., AND SCHWARTZ, C. O.		ROGOFF, J. M. See STEWART, G. N.	
RHODES, B. See GAY, E. P.		ROHMER, P.: The role of the physician in child hygiene.	258
RIBADEAU-DUMAS, L.: A case of Hodgkin's disease of mediastinal form	787	ROKURO, U.: The relation between the absorption of antibodies and the isolated protein bodies	730
RICHARD, P.: Diagnosis and treatment of the pretuberculous state in infants	1134	ROSANOFF, A. F.: A theory of personality based mainly on psychiatric experience	668
RICHARD, T. C. A.: A case of dicephalus	951	ROSE, R. H.: Acid gastritis ...	213
RICH, A. R.: Conditions of the capillaries in histamin shock	616	ROSENBAUM, H. A.: The heart in scarlet fever.....	420
RICHTER, C. M.: Influenza pandemics depend upon certain anticyclonic weather conditions for their development	613	ROSENBLATT, J. See STIVELMAN, B. P.	
RIEDER, W.: Avoidance of general symptoms, after deep x-ray treatment	845	ROSENHECK, C.: Backache due to neurological conditions..	861
RIESMAN, D.: Phlebitis and thrombosis	877	Juvenile tabes	399
RIEUX, J.: Cytologic evidence of the regeneration and the degeneration of the blood	56	ROSENOW, E. C., AND ASHBY, W.: Focal infection and elective localization in the etiology of myositis	1093
RIVAS, D.: Human parasitology	317	ROSS, E. L.: Effect of atropin on chloroform hyperglycemia	338
RIVERS, W. C.: Stigmata of predisposition to bone and joint tubercule	160	ROUQUIER, A. See BRIAND, M.	
Stigmata of predisposition to bone and joint tubercule (Paper II). Comparison of subjects of bone and joint tubercule with normals ...	448	ROUS, P., AND McMASTER, P. D.: Concentrating activity of the gall-bladder	1015
RIVET, M. L.: Notes on epidemic hiccough	196	Physiological causes for the varied character of stasis bile	1019
ROBERTSON, H. E.: Tuberculosis from the standpoint of the postmortem	604	ROUS, P. See McMASTER, P. D.	
ROBIN, A., AND BOURNIGAU, A.:		ROWE, A. S.: The value of basal metabolism studies in the diagnosis and treatment of thyroid diseases	1006

	PAGE		PAGE
ROWE, E. W.: A comparison of important factors in the diagnosis of gastric and duodenal ulcers	752	SARGENT, J. C.: Chronic cystitis.	1074
ROWLANDS, R. P. <i>See</i> HURST, A. F.		SCHAEKERS.. Ultraviolet rays and a new basis in the treatment of diseases of the heart and blood vessels...	749
ROXO, P. H.: Psychosis during involution	375	SCHAEFER, H.: Nature of the lung radiograms	561
ROYSTER, L. T.: A statistical report on the incidence of congenital syphilis	585	SCHIFF, P. <i>See</i> CRAMER, A.	
RUBENSTONE, A. I.: Newer laboratory methods in diagnosis of diseased kidneys.	929	SCHILDER, P.: Monocular polyopia in hysteria	91
RUCKER, M. P.: Potter version. The elimination of the second stage of labor	1073	SCHLOSS, O. M.: The nature of reducing substance in the urine of infants with nutritional disorders	956
RUDOLF, R. D.: The therapeutic use of oxygen	328	SCHMABERG, J. F., KOLMER, J. A., AND RAIZISS, G. W.: A comparative study of the trypanocidal activity of arspenamin and neo-arsphenamin	237
RUHRAH, J.: Benzyl benzoate in pediatric practice ..	545	SCHMID, C. A., AND SEWALL, H.: Pulmonary atelectasis as a source of confusion in physical examination of the chest	785
Benzyl benzoate in pediatric practice	951	SCHMIDT, C. L. A.: Immunological experiments with denatured and insoluble proteins	1105
RUPPE, C. <i>See</i> VEAU, V.		SCHMIDT, C. L. A. <i>See</i> BURNETT, T. C.	
RYDER, C. T. <i>See</i> WEBB, G. B.		SCHNEIDER, J. P.: A study of the bile pigments in pernicious anemia	7
RYDER, G. H.: The administration of pituitrin at the beginning of the third stage of labor	895	SCHREIBER, G. <i>See</i> NOBECOURT, P.	
SACHS, H.: Electrocardiographic studies in pregnancy ...	428	SCHRUMPF, P.: Quinin in auricular fibrillation and flutter	5
SAHLI: Generation of antibodies	308	SCHULTZ, E.W.: On the etiology of typhus fever	610
SAINZ DE AJA: Treatment of skin diseases by radium...	181	SCHULTZ-BASCHO, P.: Clinical notes on bacillary dysentery during childhood	953
SAINZ DE AJA, E. A.: Hereditary syphilis	162	SCHWARTZ, B.: Hemolysins from parasitic worms....	436
SALZMAN, S. R.: Tonsil infections	38	SCHWARTZE, E. W.: Some observations upon the behavior of a fixed oil (peanut oil) injected intraperitoneally	728
SANBORN, G. P.: The use of the serum of convalescents in the treatment of influenza-pneumonia; a summary of the results in a series of 101 cases	125	SCHWARTZ, C. O. <i>See</i> McCLURE, C. W., AND REYNOLDS, L.	
SANDIFORD, I.: The effect of the subcutaneous injection of adrenalin chlorid on the heat production, blood-pressure, and pulse-rate in man	55	SCHWEITZER, B.: Lasting results from irradiation of the uterus collum carcinoma with radio-active substances	845
The basal metabolic rate in exophthalmic goiter with a brief description of the technic used at the Mayo clinic	146	SCOTT, R. W.: Observations on the pathologic physiology of chronic pulmonary emphysema	423
SANDS, J. R. <i>See</i> KOLMER, J. A.			
SANTA CECILIA, T.: New complementary sign in facial palsy	281		

INDEX OF AUTHORS

XXIX

	PAGE
SELLERS, A.: Blood changes in lead workers	536
SEMERAK, C. B.: Changes in the human central nervous system in botulism	1050
SENTIS. <i>See</i> LEENHARDT	
SEWELL, H. <i>See</i> SCHMID, C. A.	
SLYMOUR, R. J.: The relation of catalase to heart activity	436
SHAMBAUGH, G. E.: The nasal cavities and asthma	774
SHARPE, J. S. <i>See</i> FINDLAY, L.	
SHARP, W. B. <i>See</i> JORDAN, E. O.	
SHAW, L. A. <i>See</i> DRINKER, C. K.	
SHAW, L. A. <i>See</i> LUND, C. C.	
SHEA, J. J.: Vincent's disease	135
SHEVYK, A. E. <i>See</i> BEVIER, G.	
SHIE, M. D.: Industrial lead poisoning	526
SHIPLEY, P. G., PEARSON, J. W., WEECH, A. A., AND GREENE, C. H.: X-ray pictures of the bones in the diagnosis of syphilis in the fetus and in young infants	1141
SICARD ET PARAF: Intraspinal treatment of neurosyphilis	564
SICARE, J. A.: Treatment of syphilis of the nervous system	372
SIEGEL, A. E.: Pulmonary tuberculosis in young children	1128
SILVAN, C.: Volvulus of cecum from membranous pericolicitis	999
SILVESTRI, T.: Diabetes insipidus and puberty	739
SIMON, C.: Quaternary syphilitic eruption in a diabetic	222
SIMON, S.: What constitutes the early recognition of tuberculosis	965
SIMMONS, R. R.: Epidemiological role of the case of cerebrospinal meningitis	1047
SIMPSON, B. T.: Pathology and etiology of cancer	1037
SISSON, W. R., AND FINNEY, J. M. T., JR.: Effect of feeding the pineal body upon the development of the albino rat	339
SKAVLOM, J. H. <i>See</i> DUNHAM, H. K.	
SLATER, S. H.: Some interesting things about tuberculosis	686
SMALL, W. D. D.: Cases illustrating the influence of	

	PAGE
trauma on the distribution of psoriasis	804
SMEAD, L. F.: Thrombophlebitis during the puerperium following influenza, with a report of cases	1083
SMILLIE, W. G. <i>See</i> DARLING, S. T.	
SMITH, A. K.: The treatment of acid and alkali burns... ..	522
SMITH, F. M.: Clinical observations on paroxysmal auricular fibrillations and flutter	1004
SMITH, H. W. <i>See</i> VOEGTLIN, C.	
SMITH, J. D., AND WILSON, M. A.: Comparison of smear, culture and complement-fixation in chronic gonorrhea in women.....	436
SMITH, M. I.: Studies in anaphylaxis. The relation of certain drugs to the anaphylactic reaction, and the bearing thereof on the mechanism of anaphylactic shock	439
SMITH, W. A.: Arsphenamin and neoarsphenamin	37
SNOW, F. W. <i>See</i> CHESNEY, A. M.	
SNYDER, R. G., AND RAMIREZ, M. A.: The intravenous use of foreign protein in the treatment of chronic cases of arthritis with special reference to the use of secondary proteose	789
SOLLMAN, T.: Astringency and protein-precipitation by masked tannin compounds.	811
SOPER, H. W.: A physiologic basis for the treatment of chronic constipation	497
SOUQUES, M.: A case of Parkinson's disease following lethargic encephalitis	96
SPEED, K.: Carcinoma of the pancreas	307
SPEESE, J.: Tumors of the male breast	894
SQUIER, T. L., AND NEWBURGH, L. H.: Renal irritation in man from high protein feeding	945
STANTON, R. E. <i>See</i> SULLIVAN, M. X.	
STAROBINSKY: Kola addiction	874
STARR, N. A.: Tea intoxication.	918
STAUNIG, K.: Roentgenologic demonstration of the base of	

	PAGE		PAGE
the skull. The posterior cranial fossa	750	STIVELMAN B. P., AND ROSEN- BLATT, J.: Multiple fluid collections in the chest in the course of therapeutic pneumothorax	778
STEARNS, W. G.: Chronic focal infection as affecting the nervous system	765	STOKES, J. H., AND OSBORNE, E. D.: Relative effectiveness of various forms of treat- ment in neurosyphilis. Ob- servations of the compara- tive value of routine intra- venous treatment, spinal drainage and arsphenamiz- ed serum intraspinally....	766
STEEL, W. A.: Sodium citrate treatment of thrombo-an- giitis obliterans	490	STONE, H. B.: The toxic agents developed in the course of acute intestinal obstruction, and their action	625
STEENBOCK, H. See HART, E. B.		STRAUSS, H.: Subacute liver atrophy with ascites	226
STEFFEN, G. I. See CECIL, R. L.		STRAUSS, R.: Diagnosis of car- cinoma of the stomach, con- sidered from a standpoint of gastric secretions	104
STEJSKAL, K.: Intravenous therapy and the effect of hypertonic solutions ad- ministered intravenously..	880	STROH, M.: Clinical factors in varicella with especial re- ference to blood findings....	892
STEVENS, J. T.: The newer tech- nic for deep roentgentherapy	657	STROM, S.: On roentgen diag- nosis of intracranial classi- fication	647
The management of toxic goiter with radiation	1034	STROTHER, W. H.: Elephantiasis	869
STEVENSON, E. F.: Diagnosis and treatment of gastric and duodenal ulcers	210	STRUBELL, A.: Specific prophyl- axis and therapy of tuber- culosis	873
STEVENSON, W. C.: Observa- tions on the effects of ra- dium treatment on war in- juries in the neighborhood of nerves and blood-vessels	557	STRUMPELL, A.: Encephalitis lethargica	568
STEVENSON, W. H. D.: Malignant melanomata: Es- pecially those occurring on the heel and sole of the foot	787	STURGIS, C. C. See PEABODY, F. W.	
STEWART, G. D.: The reflex stomach from the surgeon's point of view	792	STURM, E. See MURPHY, J. B.	
STEWART, G. N.: Adrenal in- sufficiency	1145	STURGIS, C. C., AND TOMPKINS, E. H.: A study of the cor- relation of the basal meta- bolism and pulse-rate in pa- tients with hyperthyroidism	224
STEWART, G. N., AND ROGOFF, J. M.: Further observations on the relation of the spinal cord to the spontaneous lib- eration of epinephrin from the adrenals, and the action of strychnin after cervical cord section	342	STURM, E. See MURPHY, J. B.	
The action of drugs upon the output of epinephrin from the adrenals	828	SULLIVAN, M. X., STANTON, R. E. AND DAWSON, P. R.: Metabolism in pellegra: A study of the urine	727
STIASSNIE. See H. LE MAIRE		SUNDWALL, J.: Health activi- ties in colleges and univer- sities	118
STILL, G. F.: On chronic intus- suspension in children	1132	SUTHERLAND, G. A.: Some forms of cardiac irregulari- ties	732
STILLIANS, A. W. See CORNELL, E. L.		SWEET, F. B.: Acute infections of the pancreas	520
STIMSON, P. M.: Syphilis of the trachea and bronchi: A resume of the diagnostic features with three case reports	980	SWEETSER, T. H. See NIXON, C. E.	
STIVELMAN, B. P.: Conditions commonly mistaken for pulmonary tuberculosis ...	784	SWELLENGREBEL, N. H., AND DE GRAAF SWELLENGREBEL, J.	

	PAGE
M. H.: Studies on the various types of malarial infection and the effect of quinin treatment among the native population of the Malay Archipelago	50
SWIFT, H. F.: IV. Preservation of stock cultures of bacteria by freezing and drying	937
SYDENSTRICKER, E. See GOLDBERGER, J.	
SYMMEES, D.: Leukanemia ...	810
SYNWOLDT, I.: Eosinophilia in muscular rheumatism	215
SZERB, S., AND REVESZ, V.: Papaverin in x-ray diagnosis of gastric disease. Report of 250 cases	559
SZTARK, C. H.: Circumcision..	159
TALBERT, G. A.: Effect of work and heat on the hydrogen concentration of the sweat	51
TALBOT, F. S.: Standards of basal metabolism in normal infants and children	958
TALBOT, F. B., AND BROWN, I. T.: Bodily mechanics	350
TATUM, A. L.: A study of the action of cocaine on the splanchnic and cervical sympathetic neuromuscular mechanisms	239
TAYLOR, A. S.: Abdominal neurasthenia	374
TAYLOR, K. P. A. See TAYLOR, S. P.	
TAYLOR, S. P. AND TAYLOR, K. P. A.: Polariscopic study of urines of a group of syphilitics	1007
TENBROECK, C.: A group of paratyphoid bacilli from animals, closely resembling those found in man	339
THANDAVAROVAN, V. D.: Gangrene due to carbon monoxid poisoning	878
THIERGEGE, G., AND BOUTELIER: The oculocardiac reflex in syphilis	101
THJOTTA, T.: On the so-called Neisser-Wechsberg inhibiting phenomenon in bactericidal immune sera	61
THOM, B. P.: Strain in spirochetes	728
THOMAS, H. M., JR.: Recurrent type I pneumonia: serum treatment of two attacks one month apart	596

	PAGE
THOMAS, H. M., JR., AND PARKER, F., JR.: Results of antimortem lung punctures in lobar pneumonia; their bearing on the mechanism of crisis	126
THOMPSON, A. R.: Traumatic stricture of the urethra in children and young subjects with some remarks concerning the immediate treatment of ruptured urethra	71
THOMSON, M. S. See WAKELEY, C. P. G.	
TIECHE, M.: Catarrh of the male urethra of non-gonorrheal origin, and its treatment with "akatinol"	488
TIMME, W.: The Mongolian idiot	659
TOBEITZ, A.: Etiology of infectious diseases	922
TOGAWA, T.: Studies in metabolic changes in experimental tetany	147
TONNET. See LOEPER.	
TOMPKINS, E. H. See STURGIS, C. C.	
TOMPKINS, E. M. See PEABODY, F. W.	
TORREY, R. G. See KLEIN, T.	
TOURNADE, A., AND GIRAUD, G.: Types of auriculoventricular dissociation obtained by stimulation of the vagus... ..	238
TRASK, J. D., JR. See BLAKE, F. G.	
TRIAS, J.: The injection of the Purkinje fibers and the lymphatics of the endocardium	430
TSURUMI, M., AND ISONO, S.: The initial exanthem of smallpox	981
TUMPEER, I. H. See ABT, I. A.	
UDAONDO, C. B.: Regurgitation of the duodenal contents in the diagnosis of duodenal ulcer	99
UMBER, F.: Acute yellow atrophy of the liver	23
UNDERHILL, B. M.: Present status of rabies	216
UTHEIM, K.: Agglutination in influenza	311
VALLERY-RADOT, P. See FLANDIN, C.	
VAN DEN BELT, Z. H. A.: Silversalvarsan natrium	709

	PAGE		PAGE
VAN EERTEN, J. W.: Dangers from injections of pituitrin	691	agnosis of acute miliary tuberculosis	17
VAN SLYKE, L. L., AND KEELER, R. F.: The CO ₂ content as a basis for distinguishing heated from unheated milk	246	WACHTER, F.: The influence of roentgen rays on the gastric secretion	842
VAN ZWALUWENBURG, J. G., AND GRABFIELD, G. B.: Apical pleuritis and its relationship to pulmonary tuberculosis	781	WADSWORTH, A. B.: VI. Comparison of the potency of polyvalent antimeningococcus serum produced with four and six representative strains and that produced with sixty strains, as determined by the agglutination titer	942
The tonsillar route of infection in pulmonary tuberculosis	779	WADSWORTH, A. B., GILBERT, R., AND HUTTON, A.: VI. Study of the classification of meningococci	938
VAQUES, LAUBRY AND DONZELOT: Treatment of syphilitic aortitis	101	WAGENER, H. P., AND WILDER, R. M.: The retinitis of diabetes mellitus	406
VARGAS, A. M.: Syncope and apparent death in whooping cough; Treatment	954	WAGNER, C. See LOEPER, M.	
VARIOT, G., AND LANTUEJOL, P.: A case of congenital paroxysmal cyanosis with an x-ray examination of the heart	255	WAKELEY, C. P. G., AND THOMSON, M. S.: A case of idiopathic multiple pigmented hemorrhagic sarcoma	848
VEAU, V., AND RUPPE, C.: A case of median superior hare lip	1131	WALKER, I. C.: Two cases of fibrinous bronchitis with a review of the literature	219
Bifid appearance of the tongue, due to a short frenum	838	WALKER, G.: The secretory pressure of the kidney as an index of pathologic conditions	916
VEIEL, E.: Foot and mouth disease in human beings	392	WALKER, J. W. T.: Hydronephroma of kidney; secondary growth of ureter	915
VERAGUTH, O.: Present status of psychotherapy	763	WALLACE, W. T.: Etiology, diagnosis and significance of hematuria of the genitourinary tract	911
VERGELY, T.: Colloidal therapy	291	WALSH, E. F.: Nephritic diet sheet	220
VERNET, M.: Vertigo. Its treatment by adrenalin	186	WALSON, C. M.: Silver salvarsan in the treatment of syphilis	584
VERNON, H. M.: Alcohol and industrial efficiency	898	WALTERS, W.: Bence-Jones proteinuria: a report of three cases with metabolic studies	399
VERZAR, F.: Consumption of oxygen by the muscles, in diminished oxygen supply	539	WARE, J. G.: Hirschsprung's disease	1137
VOEGTLIN, C., AND SMITH, H. W.: Quantitative studies in chemotherapy. The trypanocidal action of antimony compounds	432	WATTS, F.: The outlook for vocational psychology	382
Relative therapeutic value of arsphenamin and neo-arsphenamin of different manufacturers	427	WEARN, J. T. See PEABODY, F. W.	
VOGT, E.: Roentgen examination of the new born	654	WEBB, G. B., FORSTER, A. M., AND GILBERT, G. B.: Postural rest for pulmonary tuberculosis	489
VON SHOLLY, A. I., AND PARK, W. H.: Report of the prophylactic vaccination of 1536 persons against acute respiratory diseases, 1919-1920	409		
VON REY, H.: Differential di-			

	PAGE
WEBB, G. B., AND GILBERT, G. B.: Bronchiectasis and bronchitis associated with accessory sinus disease ...	590
WEBB, G. B., GILBERT, G. B., AND RYDER, C. T.: The adrenals and thyroid in experimental tuberculosis ..	839
WEBB, T. C.: The treatment of hemorrhoids by electrolysis	846
WEBER, F. P.: Unilateral dwarfism of limbs connected with congenital multiple chondromata	254
WEBSTER, L. T. <i>See</i> LEWIS, W. H.	
WEBSTER, T. H. D.: The action of radium and x-rays on malignant cells	744
WEDD, A. M.: Neurogenic irregularities of the heart in adults	1004
Paroxysmal tachycardia, with reference to nomotopic tachycardia and the role of the extrinsic cardiac nerves	707
WEDD, A. M.: Paroxysmal tachycardia, with reference to nomotopic tachycardia and the role of the extrinsic cardiac nerves	707
WEECH, A. A. <i>See</i> SHIPLEY, P. G.	
WEICH BRODT, R.: The therapy of paralysis.....	479
WEIDENTHAL, C. M. <i>See</i> HANZLIK, P. J.	
WEISS, E.: Aneurysm of the hepatic artery; with report of a case	969
WEISS, S., AND HATCHER, R. A.: Tincture of digitalis and the infusion in therapeutics....	706
WEITZIE, L.: Tumor of the breast in a young soldier..	893
WELCH, T. B.: Observations on a case of onyhal in the East African Protectorate.	102
WELLER, C. V.: The incidence and histopathology of tuberculosis of the tonsils based on eight thousand six hundred tonsillectomies ...	783
WELLS, C. W.: Blood chemistry studies in influenzal pneumonia	332
W. WERDT, F., AND KOPATSCHEK, F.: The growth of dysentery bacilli on albumin-free media	65

	PAGE
WERNER, A. H.: Radium and its therapeutic value	555
WEST, H. F., AND PRATT, J. H.: Clinical experience with a standardized dried aqueous extract of digitalis	319
WHEELER, G. A. <i>See</i> GOLDBERGER, J.	
WHEELON, H.: The interpretation of blood-pressure variations	887
WHEELON, H. <i>See</i> NEILSON, C. H.	
WHITE, P. D. <i>See</i> GARLAND, J.	
WHITE, W. A.: Outlines of psychiatry. Nervous and mental disease monograph series, No. 1.	853
WILCOX, H. B.: Some peculiarities in the symptomatology of childhood	251
WILDER, R. M. <i>See</i> WAGENER, H. P.	
WILKINSON, W. C.: Letter..	417
The search for a specific treatment of tuberculosis..	874
WILLIAMS, A. W., NEVIN, M., AND GURLEY, C.: Studies on acute respiratory infections. I. Method of demonstrating microorganisms, including "filtrable viruses", from upper respiratory tract in "health", in "common colds" and in "influenza" with the object of discovering "common strains"	1016
WILLIAMS, A. W. <i>See</i> PARK, W. H.	
WILLIAMS, C.: Classification of goiter: analysis of one hundred cases	600
WILLIAMS, J. R.: A study of the Wassermann test. Reaction in a large group of supposedly non-syphilitic individuals, including large groups of diabetics and nephritics	812
WILLIAMS, W. C. <i>See</i> CRAIG, C. F.	
WILLIS, H. S.: Studies on tuberculous infection. VIII. Spontaneous pneumokoniosis in the guinea pig	931
WILLIUS, F. A.: Report of a case of congenital heart disease with complete auriculoventricular dissociation presenting unusual features	396

	PAGE
WILSON, M. A. <i>See</i> SMITH, J. D.	
WILSON, M. G.: Exercise tolerance of children with heart disease	737
The circulatory reactions to gradual exercise in normal children	353
WILSON, S. A.: Some problems in neurology. The Argyll Robertson pupil	858
WINKLER, M.: Diphtheria of the skin	731
WISHART, M. B. <i>See</i> ALLEN, F. M.	
WITHERBEE, W. D. <i>See</i> BROWN, W. H.	
WITHERBEE, W. D. <i>See</i> MURPHY, J. B.	
WITHERBEE, W. D.: X-ray treatment of tonsils and adenoids	1027
WITHERBEE AND REMIER: X-ray treatment of acne vulgaris.	1033
WITTE, L.: Histogenesis of the cardiac muscle of the pig..	435
WOLBARST, A. L.: Wassermann contradictions considered from the clinician's point of view	309
WOLF, L. K., AND DEELMAN, H. T.: Case of melanosarcoma conjunctivæ bulbi ..	1036

	PAGE
WOODYATT, R. T.: Objects and method of diet adjustment in diabetes	1094
WOODWELL, M. N. <i>See</i> MEANS, J. H.	
WORINGER, P.: A case of fat diarrhea in a nursing	1125
The ventricle form of meningococcus meningitis	549
YACOEL, J. <i>See</i> AUBERTIN, C.	
YATES, J. L.: An outline of twelve years study of Hodgkin's disease and allied affections	887
YOUNG, W. J.: Treatment of "Vincent's Angina" by intravenous injections of salvarsan	203
YOSHIDA, S.: On the migrating course of <i>ascariid larvae</i> in the body of the host	56
ZALISKY AND BROWN: Accidental injuries from electric currents	879
ZAMBRZYCKI: Beri-beri and in-antion edema	25
ZEMAN, F. D. <i>See</i> LOEWE, L.	
ZIGLER, M.: Seminal vesiculitis	791
ZUCKERKANDL, O.: Tuberculosis of epididymis and its operative treatment	1072

INDEX OF SUBJECTS

	PAGE
ABDOMEN	
A band of scleroderma of the left lower limb with zoni-form vitiligo of the right half of the abdomen in a syphilitic girl [A. B. Marfan and N. Rabuteau]....	353
Abdominal actinomycosis [D. Brandenstein]	413
A plea for a routine x-ray examination of the gall-bladder region in every chronic abdomen [B. R. Kirklin]..	751
ABDOMINAL NEURASTHENIA	
Abdominal neurasthenia [A. S. Taylor]	374
ABDOMINAL PREGNANCY	
Primary ovarian and primary abdominal pregnancy [H. M. Ray]	910
ABORTION	
Treatment of abortion com-	

	PAGE
plicated by sepsis [G. A. Peck]	902
ACETONEMIA	
Periodic (or cyclic) vomiting with acetonemia [A. B. Marfan]	631
ACHOLURIC JAUNDICE	
Acholuric jaundice [J. M. Campbell]	1101
ACHYLIA GASTRICA	
The etiology of achylia gastrica [K. Faber].....	406
ACID-BASE EQUILIBRIUM	
Renal activity and the acid-base equilibrium [T. Nagayama]	337
ACID-BASE EQUILIBRIUM	
Studies of the acid-base equilibrium in disease from the point of view of blood cases [J. H. Means, A. V. Bock and M. N. Woodwell]	628

INDEX OF SUBJECTS

XXXV

	PAGE
ACID BURNS	
The treatment of acid and alkali burns [A. K. Smith]..	522
ACID CONCENTRATION	
Variations of acid concentration in different portions of the gastric chyme, and its relation to clinical methods of gastric analysis [F. D. Gorham]	621
ACIDEMIA	
Clinical evidences of acidemia in chronic nephritis [B. S. Cornell]	503
Acidosis and alkalosis [J. S. Haldane]	886
ACIDOSIS	
Disturbed protein and fat metabolism and the origin of diabetic acidosis [M. Labbe]	429
ACNE	
The modern treatment of acne [W. T. Highman] ...	849
ACNE VACCINE THERAPY	
Acne vaccine therapy [M. F. Engman]	689
ACNE VULGARIS	
Treatment of acne vulgaris [R. Kehl]	687
X-ray treatment of acne vulgaris [Witherbee, Remer].	1033
ACTINOMYCOSIS	
Abdominal actinomycosis [D. Brandenstein]	413
Actinomycosis, treated with radium [S. A. Heyerdahl].	182
ACUITY OF HEARING	
The effect of some antipyretics on the acuity of hearing [D. I. Macht, J. Greenberg, and S. Isaacs]	338
ACUTE VAGOTONIA	
Acute and chronic vagotonia [D. L. Feilchenfeld]	116
ADDISON'S DISEASE	
Addison's disease [M. Balen]	318
ADENITIS	
The treatment of tuberculous adenitis by roentgen rays and radium [R. H. Boggs].	1035
ADENOIDS	
Bacteriologic studies of the upper respiratory passages. I. Hemolytic streptococci of the adenoids. II. The pneumococci and nonhemolytic streptococci of adenoids and tonsils. III. The influenza bacilli (Pfeiffer) of the adenoids and	

	PAGE
tonsils. [I. Pilot and S. J. Pearlman]	1014
The diphtheria bacilli and diphtheroids of the adenoids and tonsils [I. Pilot]	1021
X-ray treatment of tonsils and adenoids [W. D. Witherbee]	1027
ADENOMA	
Adenoma of the thyroid with hyperthyroidism (thyrotoxic adenoma). A history of the recognition of this disease as a clinical entity. A study of the symptomatology with basal metabolic rates [W. M. Boothby]....	1148
ADENOMATOSIS	
Studies on disorders of the thyroid. II. Further experiences with the epinephrin hypersensitiveness test, with especial reference to "Diffuse adenomatosis" of the thyroid gland [E. Goetsch]	567
ADENOMYOMA	
Adenomyoma of the fallopian tube [R. E. Mahle]	914
ADENOPATHY	
Diagnosis and significance of tracheobronchial adenopathy [R. M. Balyeat]	735
ADRENALIN	
Adrenalin hypersensitiveness in definite and unproved pulmonary tuberculosis [F. H. Heise and L. Brown]..	199
Provocation of the beneficial crisis in the primitive pneumopathies by the intravenous injection of anti-pneumococcal serum and adrenalin. Statistics, results. Attempt at interpretation [M. Renaud]	1080
Vertigo. Its treatment by adrenalin [M. Vernet]	186
The action of adrenalin on the heart [W. J. R. Heinekamp]	344
ADRENALIN CHLORID	
The effect of the subcutaneous injection of adrenalin chlorid on the heat production, blood-pressure, and pulse-rate in man [I. Sandiford]	55
ADRENALS	
Further observations on the relation of the spinal cord	

	PAGE		PAGE
to the spontaneous libera- tion of epinephrin from the adrenals, and the action of strychnin after cervical cord section [G. N. Stew- art and J. M. Rogoff].....	342	ALIMENTARY TRACT	
The action of drugs upon the output of epinephrin from the adrenals [G. N. Ste- wart and J. M. Rogoff] ...	828	Studies on the bacteriology of the alimentary tract [N. Mutch and J. Mutch]	829
The adrenals and thyroid in experimental tuberculosis [G. B. Webb, G. B. Gilbert and C. T. Ryder]	830	ALKALI BURNS	
The relation of the thyroid and of the adrenals to the electric conductivity of other tissues [G. W. Crile]	568	The treatment of acid and al- kali burns [A. K. Smith]..	522
ADRENAL GLANDS		Changes in leukocytes and alkali reserve of blood in experimental infections [E. F. Hirsch]	935
James' theory of the emotions in relation to the adrenal glands [C. E. Kieley]	856	ALKALI RESERVE	
ADRENAL INSUFFICIENCY		The alkali reserve of the blood-plasma, spinal fluid and lymph [J. B. Collip and P. L. Backus]	388
Adrenal insufficiency [G. N. Stewart]	1145	The effect of ether anesthe- sia on the alkali reserve [W. S. Carter]	234
AGGLUTINATION		ALKALIS	
Agglutination in influenza [K. Utheim]	311	Tetany and the administra- tion of alkalis [P. S. Hen- derson]	28
A note on the claim that ag- glutinins are lipoidal in na- ture [C. Krumwiede and W. C. Noble]	828	ALKALOIDS	
The Well-Felix reaction and X19 in immune serum ag- glutination [C. Prausnitz].	244	Comparative effects of mor- phin and alkaloids of the benzylisoquinolin group on cardiac muscle [J. J. Hanzlik]	943
AGGLUTINATION TITER		ALKALOSIS	
VI. Comparison of the pot- ency of polyvalent antimen- ingococcus serum produced with four and six repre- sentative strains and that produced with sixty strains, as determined by the ag- glutination titer [A. B. Wadsworth]	942	Acidosis and alkalosis [J. S. Haldane]	886
AKATINOL		ALLERGY	
Catarrh of the male urethra of non-gonorrheal origin, and its treatment with "akatinol" [M. Tieche] ...	488	Hypersensitiveness: Anaphy- laxis and allergy [A. F. Coca]	65
ALBUMINURIAS		AMAUROSIS	
An important classification of albuminurias [E. G. Bal- lenger and O. F. Elder]...	788	Attacks of unilateral amauro- sis due to the abuse of to- bacco, with changes in the color of the iris [P. Pagniez]	400
ALCOHOL		ANAEROBIC CULTIVATION	
Alcohol and industrial effi- ciency [H. M. Vernon] ...	898	Experimental studies of the nasopharyngeal secretions from influenza patients. IV. Anaerobic cultivation [P. Oliitsky, and F.L. Gates]	948
Alcohol and syphilis as causes of mental diseases [G. H. Kirby]	660	ANAEROBIOSIS	
		III. Factors influencing anaerobiosis with special reference to the use of fresh tissue [F. L. Gates, and P. K. Oliitsky]	940
		ANAPHYLATIC REACTION	
		Studies in anaphylaxis. The relation of certain drugs to the anaphylactic reaction, and the bearing thereof on the mechanism of anaphy- lactic shock. [M. I. Smith]	439

PAGE	PAGE
ANAPHYLACTIC SHOCK	of the general anesthetics [W. De B. MacNider].... 825
Studies in anaphylaxis. The relation of certain drugs to the anaphylactic reaction, and the bearing thereof on the mechanism of anaphylactic shock [M. I. Smith]. 439	On the absorption of local anesthetics through the genito-urinary organs [D. I. Macht] 538
I. On the quantitative reaction of partially neutralized precipitin <i>in vitro</i> and <i>in vivo</i>. Studies in Anaphylaxis [A. F. Coca and K. Mitsuji]..... 440	ANEURYSM
Studies in anaphylaxis. The relation of certain drugs to the anaphylactic reaction, and the bearing thereof on the mechanism of anaphylactic shock. [M. I. Smith] 439	Aneurysm of the hepatic artery; with report of a case [E. Weiss] 969
The alkali reserve of blood-plasma during acute anaphylactic shock [A. A. Eggstein] .....1113	ANGIOMA
ANAPHYLAXIS	Report of a case of extensive cavernous angioma of the head, face and neck, with attacks of fever and somnolence [G. Blumer] .....1051
Anaphylaxis in asthma and hay-fever [M. Bisaillon and R. W. Matson] 617	ANGINA PECTORIS
Anaphylaxis in man, its bearing upon hay-fever, animal and food idiosyncrasy, and asthma [C. McNeil] .....1077	Angina pectoris of diabetes [M. Kahn] 588
Hypersensitiveness: Anaphylaxis and allergy [A. F. Coca] 65	ANILIN DYES
Ictero-genous serum anaphylaxis [C. Flandin and P. Vallery-Radot] .....1121	Urinary antisepsis: A study of the antiseptic properties and the renal excretion of 204 anilin dyes [E. G. Davis] 817
Ocular reaction in anaphylaxis [R. Kodama] 343	ANILIN POISONING
ANEMIA	A case of acute anilin poisoning [A. H. Ehrenclou] 675
A diet for pernicious anemia [R. L. Fenlon] 771	ANILIN TUMORS
Contribution to the study of anemia with splenomegaly in nurslings (2 papers) [G. L. Hallez]..... 444	A discussion of the etiology of so-called anilin tumors of the bladder [A. Hamilton] 793
The catalase content of the blood in different types of anemia [E. B. Krumbhaar, and J. H. Musser, Jr.].... 392	ANTENATAL INTESTINAL OBSTRUCTION
The relationship of the anemias to life insurance [H. Z. Griffin] 391	Report of a case of antenatal intestinal obstruction, with some remarks on other forms of intestinal obstruction in infants [S. A. Owen and N. Lake]..... 447
ANESTHETICS	ANTHRAX
A preliminary paper on the relation between the amount of stainable lipid material in the renal epithelium and the susceptibility of the kidney to the toxic effect	Anthrax from the shaving brush and primary anthrax meningitis [H. W. Carey]. 110
	Hemorrhagic meningoencephalitis in anthrax [S. J. House] 377
	ANTIBODIES
	Antibody studies. I. Reversal of the antigen-antibody reaction [F. M. Huntton] ... 932
	Generation of antibodies [Sahli] 308
	II. The recovery of antibody from sensitized antigens: Technic [F. M. Huntton, and S. Etris] 933
	III. Chemical nature of antibody [F. M. Huntton, P. Mascucci, and E. Hannum] 931

	PAGE
On the placental transmission of so-called normal antibodies [G. C. Reyman]....	430
Relation of antibody and antigen to serum disease susceptibility [G. M. Mackenzie and W. H. Leake]..	1010
The relation between the absorption of antibodies and the isolated protein bodies [U. Rokuro]	730
ANTIBODY RESPONSE	
Polyvalent antibody response to multiple antigens [F. M. Huntoon and S. H. Craig]	820
ANTIGEN	
Complement-fixation in influenza with <i>bacillus influenzae</i> antigens [J. V. Cooke]	435
II. The recovery of antibody from sensitized antigens: Technic [F. M. Huntoon, and S. Etris]	933
* Relation of antibody and antigen to serum disease susceptibility [G. M. Mackenzie and W. H. Leake]..	1010
The relation of the rate of absorption of antigen to the production of immunity [M. W. Cook]	60
ANTIMENINGOCOCCIC SERUM	
VI. Comparison of the potency of polyvalent antimeningococcus serum produced with four and six representative strains and that produced with sixty strains, as determined by the agglutination titer [A. B. Wadsworth]	942
Recovery from tuberculous meningitis after treatment with intraspinal injections if antimeningococcic serum [A. W. Hollis and I. H. Pardee]	188
ANTIMONY	
Further work on antimony intravenously in filariasis [Sir L. Rogers]	140
Quantitative studies in chemotherapy. The trypanocidal action of antimony compounds [C. Voegtlin and H. W. Smith].....	432
The treatment of bilharziasis with antimony [J. E. R. McDonagh]	26

	PAGE
ANTI-ORGAN SERA	
Specificity of anti-organ sera [M. S. Fleisher and N. Arnstein]	822
ANTI-PNEUMOCOCCAL SERUM	
Provocation of the beneficial crisis in the primitive pneumopathies by the intravenous injection of anti-pneumococcal serum and adrenalin. Statistics, results. Attempt at interpretation [M. Renaud]	1080
ANTI-PYRETICS	
The effect of some antipyretics on the acuity of hearing [D. I. Macht, J. Greenberg, and S. Isaacs]	338
ANTISCORBUTIC POTENCY	
Antiscorbutic potency of milk powders [E. B. Hart, H. Steenbock and R. Ellis] ..	646
ANTISYPHILITIC THERAPY	
Antisymphilitic therapy. A comparative study of some intensive methods [L. Chargin]	710
AORTA	
Saccular aneurysm of the descending thoracic aorta [E. S. DuBray]	589
AORTITIS	
Specific aortitis [W. D. Reid]	4
Treatment of syphilitic aortitis [Vaques, Laubry and Donzelot]	101
APICAL PLEURITIS	
Apical pleuritis and its relationship to pulmonary tuberculosis [J. G. Van Zwaluwenburg and G. B. Grabfield]	781
APPENDICECTOMY	
Measles, intussusception and appendicectomy in a baby seven months old [B. W. Gowring]	1133
APPENDICITIS	
Intestinal parasites as a cause of appendicitis [W. W. Cress]	401
Some of the clinical symptoms of appendicitis compared with the lesions found at operation [C. B. Maunsell]	26
The co-existence of gall-bladder and appendiceal infection [W. A. Quimby]	1086
The result of operations for chronic appendicitis; a	

	PAGE
study of 555 cases [C. L. Gibson]	108
APPENDICULAR INFLAMMATION	
Gastric disturbances in appendicular inflammation [S. Floersheim]	320
APPENDIX	
A collected abstract of the literature on roentgenology for the year 1919. Organs of digestion [gastro-intestinal tract] [L. S. Hirsch]	77
Hemolytic streptococci of the appendix vermiformis [A. Kraft]	542
ARGYLL ROBERTSON PUPIL	
Some problems in neurology. The Argyll Robertson pupil [S. A. Wilson]	858
ARRHYTHMIA	
On the prognosis and treatment of important cardiac arrhythmias [K. Grassman]	223
Sinusal arrhythmia [W. Caalsmeer]	120
ARSENIC POISONING	
Magnesium sulphate in arsenic poisoning [O. S. Hansen]	725
ARSPHENAMIN	
A comparative study of the trypanocidal activity of arspenamin and neo-arsphenamin [J. F. Schmaberg, J. A. Kolmer, and G. W. Raiziss]	237
Arsphenamin and neoarsphenamin [W. A. Smith].	37
Paresis treatment by arspenamin and mercury [C. A. Bonner]	1041
Relative effectiveness of various forms of treatment in neurosyphilis. Observations of the comparative value of routine intravenous treatment, spinal drainage and arspenaminized serum intraspinally [J. H. Stokes and E. D. Osborne]	760
Some observations on the use of arspenamin: Its effect on the kidneys and its therapeutic results [H. B. Anderson]	1006
1. Superinfection in experimental syphilis following the administration of subcurative doses of arspenamin or neoarsphenamin [W. H. Brown and L. Pearce]	1008

	PAGE
The relative therapeutic value of arspenamin and neo-arsphenamin of different manufacturers [C. Voegtlin and H. W. Smith]	427
ARTERIOSCLEROSIS	
Abdominal arteriosclerosis and the obliteration of the mesenteric arteries [F. F. Martinez]	987
Arteriosclerosis and cardiovascular disease. Their relation to infectious diseases [W. Ophuls]	505
Arteriosclerosis in wild animals [H. Fox]	247
Human arteriosclerosis: some remarks concerning its etiology and symptomatology [G. W. Norris]	222
ARTHRITIS	
Etiologic and therapeutic considerations in arthritis [G. Parker]	1099
The intravenous use of foreign protein in the treatment of chronic cases of arthritis with special reference to the use of secondary proteose [R. G. Snyder and M. A. Ramirez]	789
The role of the prostate and seminal vesicles in arthritis [O. S. Lowsley]	790
The use of diet in the treatment of chronic arthritis [R. Pemberton]	981
ARTIFICIAL FEEDING	
On the results of artificial feeding in the nursery of Montevideo [A. Mola]	452
ASCARID LARVAE	
On the migrating course of <i>ascaris larvae</i> in the body of the host [S. Yoshida]	56
ASCITES	
Subacute liver atrophy with ascites [H. Strauss]	226
ASPHYXIA	
Asphyxia [E. A. Graham]	33
ASTHENIA	
Notes on gastric secretions in neurocirculatory asthenia [J. A. Musser]	247
ASTHMA	
Anaphylaxis in asthma and hay-fever [M. Bisailon and R. W. Matson]	617
Anaphylaxis in man, its bearing upon hay-fever, animal	

	PAGE		PAGE
and food idiosyncrasy, and asthma [C. McNeil]	1077	oxysmal auricular fibrilla- tions and flutter [F. M. Smith]	1004
Asthma in infancy [A. B. Marfan]	69	Quinin in auricular fibrilla- tion and flutter [P. Schrumpf]	5
Bronchial asthma: Response to pilocarpin and epinephr- in [H. L. Alexander and R. Paddock]	410	AURICULAR HEART SOUNDS The auricular heart sounds [W. D. Reid]	705
Sensitization in bronchial asthma and hay-fever [A. H. W. Caulfield]	681	AURICULOVENTRICULAR DISSOCIATION Report of a case of congeni- tal heart disease with com- plete auriculoventricular dissociation presenting un- usual features [F. A. Wil- lius]	396
The nasal cavities and asth- ma [G. E. Shambaugh]...	774	Types of auriculoventricular dissociation obtained by stimulation of the vagus [A. Tournade, and G. Giraud].	238
The relation of sputum bac- teria to asthma [F. M. Rackemann]	229	AZOTEMIC NEPHRITIS Pernicious anemia and azote- mic nephritis [C. Aubertin and J. Yacoel]	110
ASTRINGENCY Astringency and protein-pre- cipitation by masked tannin compounds [T. Sollmann].	811	BACILLUS INFLUENZÆ Acute respiratory infection in man following inoculation with virulent bacillus in- fluenzæ [R. L. Cecil and G. I. Steffen]	964
ATAXIA Acute cerebrocerebellar atax- ia [J. P. C. Griffith].....	384	Bacillus influenzae in normal and pathologic throats [J. Arnold]	124
ATELECTASIS Pulmonary atelectasis as a source of confusion in phys- ical examination of the chest [C. A. Schmid and H. Sewall]	785	Complement-fixation in in- fluenza with <i>bacillus in- fluenzæ</i> antigens [J. V. Cooke]	435
ATHREPSIA The states of malnutrition in early infancy,—hypothreps- ia and athrepsia [A. B. Marfan]	1126	BACILLUS TUBERCULOSIS A comparison of the three methods of examining sputa for <i>Bacillus tuberculosis</i> [L. R. Jones]	248
ATROPHY Acute yellow atrophy of the liver [F. Umber]	23	BACILLUS PARATYPHOSUS B An atypical bacillus para- typhosus B infection [H. J. Morgan]	1002
Induced atrophy of hypertro- phied tonsils by roent- gen ray [J. B. Murphy, W. D. Witherbee, S. L. Craig, R. G. Hussey, and E. Sturm]	562	BACK Percussion note of the back in the lateral position [T. Howard]	676
Neural progressive muscular atrophy [H. Goedde]	767	BACKACHE Backache due to neurological conditions [C. Rosenheck]	861
ATROPIN Effect of atropin on chloro- form hyperglycemia [E. L. Ross]	338	BACTERIA A natural classification of bacteria [O. Rahn]	243
Subacute liver atrophy with ascites [H. Strauss]	226	IV. Preservation of stock cultures of bacteria by freezing and drying [H. F. Swift]	937
AURICULAR FIBRILLATION Clinical observations on par- oxysmal auricular fibrilla- tions and flutter [F. M. Smith]	1004		
Quinin in auricular fibrilla- tion and flutter [P. Schrumpf]	5		
AURICULAR FLUTTER Clinical observations on par-			

	PAGE		PAGE
Life cycles of the bacteria and their possible relation to pathology [R. R. Mellon]..	141	ism in men [J. A. Harris, and F. G. Benedict]	870
The relation of sputum bacteria to asthma [F. M. Rackemann]	229	BATHS	
BACTERIAL DECOMPOSITION		Study of the natural Saratoga-Nauheim baths at Saratoga Springs, N. Y. [J. F. Humphrey].....	395
Bacterial decomposition of salmon [A. C. Hunter]	146	BENCE-JONES PROTEIN	
BACTERIUM PNEUMOSINTES		Specific precipitin for Bence-Jones protein [L. Hektoen] 619	
Experimental studies of the nasopharyngeal secretions from influenza patients. V. Bacterium pneumosintes and concurrent infections [P. K. Olitsky and F. Gates]	1018	BENCE-JONES PROTEINURIA	
BARLEY		Bence - Jones proteinuria: a report of three cases with metabolic studies [W. Walters]	399
Nutritive values of the proteins of the barley, oat, rye, and wheat kernels [T. B. Osborne, and L. B. Mendel] 249		BENEDICT METHOD	
BASAL METABOLISM		A demonstration of the technique followed in the determination of the basal metabolism rate-indirect method using the Benedict portable unit [H. P. Jones] ...	985
A demonstration of the technique followed in the determination of the basal metabolism rate-indirect method using the Benedict portable unit [H. P. Jones] ..	985	BENZYL BENZOATE	
A study of the correlation of the basal metabolism and pulse-rate in patients with hyperthyroidism [C. C. Sturgis, and E. H. Tompkins]	224	A pharmacological study of benzyl benzoate [E. C. Mason and C. E. Pieck]....	426
Basal metabolism as an index of treatment in diseases of the thyroid [F. H. Lahey and S. M. Jordan]	851	Benzyl benzoate in pediatric practice [J. Ruhrah]	545
Basal metabolism and its clinical significance [H. G. Earle and Goodall]	985	Benzyl benzoate in pediatric practice [J. Ruhrah]	951
Observations on the basal metabolism estimations in the goiter clinic of the University Hospital [C. H. Frazier and F. H. Adler]..	1002	The benzyl benzoate treatment of whooping cough [T. E. McMurray]	159
Remarks on standards for normal basal metabolism [J. H. Means, and M. N. Woodwell]	871	The effect of benzyl benzoate on the leukocytes of the rabbit [L. A. Emge, and J. P. Jenson]	944
Standards of basal metabolism in normal infants and children [F. S. Talbot]	958	BENZYLISOQUINOLIN GROUP	
The value of basal metabolism studies in the diagnosis and treatment of thyroid diseases [A. S. Rowe]	1006	Comparative effects of morphin and alkaloids of the benzylisoquinolin group on cardiac muscle [J. J. Hanzlik]	948
The variation and statistical constants of basal metabolism		BERI-BERI	
		Beri-beri and inanition edema [Zambrzycki]	25
		BIFID APPEARANCE	
		Bifid appearance of the tongue due to a short frenum [V. Veau and C. Ruppe]..	838
		BILE	
		A study of the bile pigments in pernicious anemia [J. P. Schneider]	1
		Physiological causes for the varied character of stasis bile [P. Rous and P. D. McMaster]	1019
		BILHARZIASIS	
		Colloidal drugs in the treatment of Bilharzia disease	

	PAGE
in young people [F. G. Cawston]	300
The treatment of bilharziasis with antimony [J. E. R. McDonagh]	26
BILIARY TRACT	
Pathogenesis and physiopathology of gall-bladder and biliary-tract lesions [V. A. Lapenta]	602
BIRTH-RATE	
The birth-rate and infant mortality [P. Nobecourt and G. Schreiber]	346
BISMUTH CARBONATE	
Treatment of pinworms by bismuth carbonate [N. G. Barrio]	956
BISMUTH SUBNITRATE POISONING	
Acute bismuth subnitrate poisoning [C. D. Constantinescu and A. Jonescu]...	203
BLACKWATER FEVER	
Notes on blackwater fever in Macedonia [J. F. Gaskall].	107
BLADDER	
A discussion of the etiology of so-called anilin tumors of the bladder [A. Hamilton]	793
BLOOD	
Attempt to detect thyroid secretion in blood obtained from the glands of individuals with exophthalmic goiter and other conditions involving the thyroid [J. M. Rogoff and H. Goldblatt]	1055
Blood changes in a gastrectomized patient simulating those in pernicious anemia [H. R. Hartman]	1003
Changes in the alkali reserve, sugar concentration, and leukocytes of the blood in experimental infections [E. F. Hirsch]	1005
Blood changes in lead workers [A. Sellers]	536
Blood changes in a case of hemophilia after transfusion [H. A. Bulger]	540
Blood chemistry studies in influenzal pneumonia [C. W. Wells]	332
Blood transfusion in the newborn [A. Bamberger]	256
Changes in leukocytes and alkali reserve of blood in	

	PAGE
experimental infections [E. F. Hirsch]	935
Chemical changes in the blood in disease [V. C. Myers] ..	52
Chemical changes in the blood in disease. III. Creatinin [V. C. Myers]	151
Chemical changes in the blood in disease. IV. Blood sugar [V. C. Myers]	152
Chemical changes in the blood in disease. V. Carbon dioxide combining power [V. C. Myers]	240
Chemical changes in the blood in disease. VI. Cholesterol [V. C. Myers]	329
Chemical changes in the blood in disease. VII. Chlorids [V. C. Myers]	331
Cytologic evidence of the regeneration and the degeneration of the blood [J. Rieux]	56
Direct quantitative determination of potassium and sodium in small quantities of blood [B. Kramer]	52
Precipitin response in the blood of rabbits following subarachnoid injections of horse serum [H. L. Alexander]	820
Report on 5000 bloods typed using Moss's grouping [W. L. Culpepper and M. Ableson]	722
Rubber tubing as a factor in reaction to the blood transfusion [G. J. Busman]	150
Studies of the acid-base equilibrium in disease from the point of view of blood cases [J. H. Means, A. V. Bock and M. N. Woodwell]	628
Studies of blood sugar; effect of blood constituents on picrate solutions. A consideration of the limitations of the modified Lewis-Benedict test [D. M. Cowie and J. P. Parsons]	437
The behavior of blood sugar in cases of diabetic neuritis and neuralgia [K. Grube]	95
The catalase content of the blood in different types of anemia [E. B. Krumbhaar and J. H. Musser, Jr.]....	392
The occurrence of abnormal	

INDEX OF SUBJECTS

xliii

	PAGE
leukocytes in the blood in acute infections, acute lymphoblastosis [W. A. Bloedorn and J. E. Houghton].	537
The liver as a blood concentrating organ [P. D. Lamson and J. Roca]	978
The part played by the liver in the regulation of blood volume and red corpuscle concentration in acute physiological conditions [P. D. Lamson]	431
The phenolsulphonephthalein test and the non-protein nitrogen of the blood in chronic nephritis [R. Fitz]	157
The proteolytic ferment of the tumors and the blood of patients suffering with cancer [Loeper, Faroy and Tonnet]	314
Transfusion of blood in pernicious anemia [J. M. Graham]	8
BLOOD-CELLS	
Studies on the resistance of the red blood-cells. I. Resistance of the red blood-cells in health to the hemolytic action of sapotoxin [C. H. Neilson and H. Wheelon]	1116
Studies on the resistance of the red blood-cells. II. The resistance of the red blood-cells in disease to the hemolytic action of sapotoxin [C. H. Neilson and H. Wheelon]	1110
Studies on the resistance of the red blood-cells. III. The relation of cholesterol to the resistance of the red blood-cells to the hemolytic action of sapotoxin [C. H. Neilson and H. Wheelon]	1114
The reticular material of developing blood-cells [E. V. Cowdry]	936
BLOOD CHEMISTRY	
Some phases of blood chemistry of practical use to the practitioner [H. A. Higley, and C. W. Field]	109
BLOOD-CLOTTING	
The plasma and blood-clotting efficiency of thromboplastic agents <i>in vitro</i> and their stability [P. J. Hanzlik and C. M. Weidenthal].	306

	PAGE
BLOOD-PLASMA	
The alkali reserve of the blood-plasma spinal fluid and lymph [J. B. Collip and P. L. Backus]	388
BLOOD PLATELETS	
Studies in the properties of blood platelets [T. E. Buckman and J. E. Hallisey]	535
BLOOD-PRESSURE	
An indirect method for the determination of blood-pressure in the unanesthetized dog. [A. C. Kolls]	438
A rational interpretation of blood-pressure findings [F. A. Faught]	771
Behavior of blood-pressure during the use of the stomach tube [C. A. McKinlay]	387
Blood-pressure in University freshmen and office patients [W. C. Alvarez]	326
Continuous blood-pressure tracings in man; an apparatus. [A. C. Kolls]	438
Determination of the capillary blood-pressure in man with the micro-capillary tonometer [C. S. Danzer and D. R. Hooker]	154
On the causation of cardiac hypertrophy and high blood pressure in renal disease [G. Jawein]	397
Pneumonia in a woman with an habitual high blood-pressure [M. J. Konikow]	30
Pulse-rate and blood-pressure responses of men to postural changes [M. M. Ellis]	978
The effect of the subcutaneous injection of adrenalin chlorid on the heat production, blood-pressure, and pulse-rate in man [I. Sandiford]	55
The influence of protein food on increased blood-pressure [H. O. Mosenthal]	535
The interpretation of blood-pressure variations [H. Wheelon]	887
BLOOD SERUM	
Interpretation of Wassermann reaction of blood-serum in mental disease [J. A. Jackson]	542
Investigations concerning the characteristics of blood-serum in individuals inocu-	

	PAGE
lated against rabies [J. Kostrzewski]	322
BLOOD STAINING	
Leukemia: Type diagnosis by oxydase method of blood staining [G. L. Lambricht]	601
BLOOD SUGAR	
Chemical changes in the blood in disease. IV. Blood sugar [V. C. Myers]	152
Studies of blood sugar; effect of blood constituents on picrate solutions. A consideration of the limitations of the modified Lewis-Benedict test. [D. M. Cowie and J. P. Parsons]	437
The behavior of blood sugar in cases of diabetic neuritis and neuralgia [K. Grube]	95
The use of a high fat diet in the treatment of diabetes mellitus. Second paper: Blood sugar [L. H. Newburgh and P. L. Marsh]...	773
BLOOD TRANSFUSION	
Blood transfusion in the new born [A. Bamberger]	256
Rubber tubing as a factor in reaction to the blood transfusion [G. J. Busman]	150
The effect of the digestive period and other factors in reactions after blood transfusions [J. L. Butsch and W. Ashby]	814
The transfusion of blood with report of 186 transfusions [R. S. Ravdin and E. Glenn]	974
Transfusion of blood in perinicious anemia [J. M. Graham]	8
BLOOD UREA NITROGEN	
The blood urea nitrogen in [H. W. Louria]	721
BLOOD-VESSELS	
Observations on the effects of radium treatment on war injuries in the neighborhood of nerves and blood-vessels [W. C. Stevenson].	557
On the duration of constriction of blood-vessels by epinephrin [S. J. Meltzer, and J. Auer]	946
Ultraviolet rays and a new basis in the treatment of diseases of the heart and blood-vessels [Schaecker]..	749

	PAGE
BODILY MECHANICS	
Bodily mechanics [F. B. Talbot and L. T. Brown]	350
BONES	
A few notes on the diagnosis and differential diagnosis of tuberculosis in bones and joints [G. Forsell]	650
Collected abstract of the literature on roentgenology for the year 1919. Bones and joints [I. S. Hirsch]...	356
Experimental syphilis in the rabbit. VI. Affections of bone, cartilage, tendons, and synovial membranes [W. H. Brown, L. Pearce and W. acute intestinal obstruction D. Witherbee]	723
Paget's disease of the bone [J. C. Da Costa]	881
Stigmata of predisposition to bone and joint tubercule [W. C. Rivers]	160
Stigmata of predisposition to bone and joint tubercule (Paper II). Comparison of subjects to bone and joint tubercule with normals [W. C. Rivers]	448
Triple calcium phosphate as a stimulant for bone reproduction (healing) in fractures [R. J. Rehan]	1088
X-ray pictures of the bones in the diagnosis of syphilis in the fetus and in young infants [P. G. Shipley, J. W. Pearson, A. A. Weech, and C. H. Greene]	1141
BONE MARROW	
Histological changes in the bone marrow of rats exposed to the radiation from radium [J. C. Mottram]...	467
BOTULISM	
Botulism [Department of Agriculture]	217
Botulism from canned ripe olives [H. W. Emerson, and G. W. Collins]	322
Changes in the human central nervous system in botulism [C. B. Semerak] ...	1050
Treatment of botulism [V. Burke, J. C. Elder, and D. Pischell]	508
BREAST	
Paget's disease of the breast [J. E. Else]	483
The present status of roentgen	

	PAGE
and radium treatment of cancer of the breast [Grover, Christie and Merritt]..	1140
Tumor of the breast in a young soldier [L. Weitzel]	893
Tumors of the male breast [J. Speese]	894
BRIGHT'S DISEASE	
Bright's disease with special reference to treatment [H. A. Christian].....	403
BRONCHIAL ASTHMA	
Bronchial asthma [H. L. Alexander and R. Paddock]	410
Sensitization in bronchial asthma and hay-fever [A. H. W. Caulfield]	681
BRONCHIECTASIS	
Bronchiectasis and bronchitis associated with accessory sinus disease [G. B. Webb and G. B. Gilbert]	590
BRONCHI	
Syphilis of the trachea and bronchi: A resume of the diagnostic features with three case reports [P. M. Stimson]	980
BRONCHITIS	
Bronchiectasis and bronchitis associated with accessory sinus disease [G. B. Webb and G. B. Gilbert]	590
BRONCHOPNEUMONIA	
Notes on the diagnosis of bronchopneumonia and its complications [N.B. Foster]	591
Some observations on the use of vaccines and glucose in the treatment of influenza and bronchopneumonia [H. H. Koons]	311
BRONCHUS	
Roentgen-ray studies of bronchial function [J. G. M. Bullowa and C. Gottlieb]..	466
BUBOES	
Digestion of keloids, cicatrices and buboes with pepsin - hydrochloric acid [E. Ahlswede]	1076
CAFFEIN	
The action of caffein, theobromin and theophyllin on the mammalian and batrachian heart [R. St. A. Heathcote]	544
CALCIUM	
Influence of calcium on glucosuria [A. G. Phocas].....	408

	PAGE
CANCER	
Bearing of the cancer problem on the prolongation of human life [J. A. Pettit]..	485
Causes and definition of cancer [L. Loeb]	228
Malignancy of the crown-gall and its analogy to animal cancer [I. Levin and M. Levine]	340
On the cure of cancer [L. D. Bulkley]	137
Pathology and etiology of cancer [B. T. Simpson] ..	1087
Proteolytic ferment of the tumors and the blood of patients suffering with cancer [Loeper, Faroy and Tonnet]	314
Roentgen-ray treatment of cutaneous cancer [H. H. Hazen]	743
Studies of x -ray effects. VI. Effect of the cellular reaction induced by x -rays on cancer grafts [J. B. Murphy, R. G. Hussey, W. Nakahara, and E. Sturm]..	743
Studies on lymphoid activity. V. Relation between the time and extent of lymphoid stimulation induced by physical agents and the degree of resistance to cancer in mice [J. B. Murphy, W. Nakahara, E. Sturm]..	819
Studies of x -ray effects. VII. Effects of small doses of x -rays of low penetration on the resistance of mice to transplanted cancer [W. Nakahara and J. B. Murphy]	748
The lymphocyte in natural and induced resistance to transplanted cancer. VI. Histological comparison of the lymphoid tissue of naturally immune and susceptible mice [W. Nakahara and J. B. Murphy]	621
The necessity of a publicity campaign against cancer [J. W. S. McCullough]....	484
The precancerous stage [F. D. Moore]	227
The present status of roentgen and radium treatment of cancer of the breast [Grover, Christie, and Merritt]	1140

	PAGE
The treatment of cancer [F. Bryant]	691
Treatment of cancer (Editorial)	315
CANCER GRAFTS	
2. Effect of induced cellular reaction on the fate of cancer grafts. IV. Studies on lymphoid activity. [J. Murphy, R. G. Hussey, E. Sturm and W. Nakahara]	815
CAPILLARIES	
Conditions of the capillaries in histamin shock [A. R. Rich]	616
Determination of the capillary blood-pressure in man with the micro-capillary tonometer [C. S. Danzer and D. R. Hooker]	154
CARBOHYDRATE	
Availability of carbohydrate in certain vegetables [W. H. Olmstead]	67
The determination of carbohydrates in vegetable foods [V. Myers and H. M. Croll]	624
CARBON DIOXID	
Chemical changes in the blood in disease. V. Carbon dioxide combining power [V. C. Myers]	240
CARBON MONOXID POISONING	
A survey of carbon monoxid poisoning in American steel works, metal mines, and coal mines [H. S. Forbes]	796
Chronic carbon monoxid poisoning. Its immediate and subsequent manifestations [G. Luden]	878
Gangrene due to carbon monoxid poisoning [V. D. Thandavarayan]	878
CARCINOMA	
A critical study of an organism associated with a transplantable carcinoma of the white mouse [J. W. Nuzum]	1119
Carcinoma of the pancreas [K. Speed]	307
Diagnosis of carcinoma of the stomach, considered from a standpoint of gastric secretions [R. Strauss]....	104
CARDIAC CONDITIONS	
Cardiac conditions in child-	

	PAGE
ren; their significance and prognosis [B. Bashiuski] ..	642
CARDIAC DISEASE	
The ambulatory patient with cardiac disease with especial reference to digitalis therapy [E. J. Pellini]....	503
CARDIAC IRREGULARITIES	
Some forms of cardiac irregularities [G. A. Sutherland]	732
CARDIAC MUSCLE	
Histogenesis of the cardiac muscle of the pig [L. Witte]	435
CARDIAC NERVES	
Paroxysmal tachycardia, with reference to nomotopic tachycardia and the role of extrinsic cardiac nerves [A. M. Wedd]	707
CARDIO-CIRRHOSIS	
Cardio-cirrhosis (Hutinel's or Pick's disease)-Etiology [J. C. Navarro]	1125
CARDIORESPIRATORY CORRELATIONS	
Cardiorespiratory correlations in neuropathology [J. Parhon]	378
CARDIOVASCULAR DISEASE	
Arteriosclerosis and cardiovascular disease. Their relation to infectious disease [W. Ophuls]	505
CAROTINEMIA	
Carotinemia. Report of a case in an adult [G. D. Head and R. A. Johnson]..	1092
CARTILAGE	
Experimental syphilis in the rabbit. VI. Affections of bone, cartilage, tendons, and synovial membranes [W. H. Brown, L. Pearce and W. D. Witherbee]	723
CASCARA SAGRADA	
The action of cascara sagrada [H. McGuigan].....	407
CASE HISTORY	
Clinical surgery by case histories [A. E. Hertzler]....	376
CATALASE	
Immunological experiments with catalase [T. C. Burnett and C. L. A. Schmidt].	1105
Relation of catalase to heart activity [R. J. Seymour]..	436
The catalase content of the blood in different types of anemias [E. B. Krumbhaar and J. H. Musser, Jr.]....	392
CATARRH	
Catarrh of the male urethra	

INDEX OF SUBJECTS

xlvii

	PAGE
of non-gonorrheal origin, and its treatment with "akatinol" [M. Tieche]....	488
CECUM	
Volvulus of cecum from membranous pericolicitis [C. Silvan]	999
CELLULAR REACTION	
2. Effect of induced cellular reaction on the fate of cancer grafts. IV. Studies on lymphoid activity. [J. Murphy, R. G. Hussey, E. Sturm and W. Nakahara].	815
CEREALS	
The role of the outer covering of cereals in infant feeding [J. Comby]	354
CEREBRAL CONCUSSION	
Gastric disturbances following cerebral concussion [M. Loeper, and C. Wagner]...	50
CEREBRO CEREBELLAR ATAXIA	
Acute cerebrocerebellar ataxia [J. P. C. Griffith]	384
CEREBROSPINAL FLUID	
Cholesterol in cerebrospinal fluid [A. Levinson, L. L. Landenberger and K. M. Howell]	1053
The cerebrospinal fluid in epidemic encephalitis [P. Boveri]	571
The cerebrospinal fluid in treated syphilis [J. E. Moore]	565
The significance of xanthochromia of the cerebrospinal fluid [I. A. Abt and I. H. Tumpeer]	258
CEREBROSPINAL MENINGITIS	
Cured cerebrospinal meningitis in a girl of eight months [J. Comby and J. Pallegoix]	452
Epidemiological role of the case of cerebrospinal meningitis [R. R. Simmons]..	1047
CERVICAL CORD	
Further observations on the relation of the spinal cord to the spontaneous liberation of epinephrin from the adrenals, and the action of strychnin after cervical cord section [G. N. Stewart and J. M. Rogoff]	342
CHAULMOOGRA OIL	
Chaulmoogra oil in the treatment of tuberculosis [W.	

	PAGE
L. Culpepper and M. Ableson]	1091
Preliminary note on the treatment of nodular leprosy by intravenous injections of chaulmoogra oil [P. Harper]	685
The influence of chaulmoogra oil on the tubercle bacillus [J. A. Kolmer, L. C. Davis and R. Jager]	684
CHEMOTHERAPY	
Chemotherapy of trypanosome and spirochete infections. Biological series. II. The therapeutic action of n-phenylglycinamid-p-arsonic acid in experimental trypanosomiasis of mice, rats and guinea pigs. III. The therapeutic action of n-phenylglycinamid-p-arsonic acid in experimental trypanosomiasis of rabbits [L. Pearce, and H. Brown]	63
Chemotherapy of trypanosome and spirochete infections. Biological series. IV. The action of N-phenylglycinamid-p-arsonic acid upon spirochete infections [W. H. Brown and L. Pearce]	156
Chemotherapy of tuberculosis. [S. Melamet]	300
Mercury compounds in the chemotherapy of experimental tuberculosis in guinea pigs [L. M. DeWitt]....	543
Quantitative studies in chemotherapy. The trypanocidal action of antimony compounds. [C. Voegtlin and H. W. Smith].....	432
CHENOPODIUM	
The technic of chenopodium administration in hookworm disease [S. T. Darling and W. G. Smillie].....	409
CHEST	
Multiple fluid collections in the chest in the course of therapeutic pneumothorax [B. P. Stivelman and J. Rosenblatt]	778
Pulmonary atelectasis as a source of confusion in physical examination of the chest [C. A. Schmid and H. Sewall]	785

	PAGE		PAGE
CHICKEN CESTODE		some remarks on other	
On the life-history of the		forms of intestinal obstruction	
chicken cestode, <i>hymenolepis</i>		in infants [S. A. Owen and N. Lake].....	447
<i>carica</i> [J. E. Gubertlet]	54	Role of the outer covering of	
CHILD HYGIENE		cereals in infant feeding [J. Comby]	354
The role of the physician in		Some peculiarities in the	
child hygiene [P. Rohmer]	258	symptomatology of childhood	
CHILDREN		[H. B. Wilcox]	251
Asthma in infancy	69	Stools and their relation to	
Band of scleroderma of the		the artificial feeding in infants	
left lower limb with zoni-		[J. I. Grover].....	453
form vitiligo of the right		The treatment of ordinary	
half of the abdomen in a		(noninfectious) diarrhea	
syphilitic girl [A. B. Marfan		in artificially fed infants	
and N. Rabuteau].....	353	[A. B. Marfan].....	440
Birth-rate and infant mortal-		Traumatic stricture of the	
ity [P. Nobecourt and G. Schreiber]	346	urethra in children and	
Blood transfusion in the new		young subjects, with some	
born [A. Bamberger]	256	remarks concerning the im-	
Bodily mechanics [F. B. Tal-		mediate treatment of rup-	
bot and L. T. Brown]	350	tured urethra [A. R. Thompson]	
Case of postcommotional		.....	71
amyotrophy in an infant		CHLORIDS	
following a shell explosion		Chemical changes in the	
[P. Hausalter and P. Kahn]	348	blood in disease. VII.	
Certain nutritional disorders		Chlorids [V. C. Myers]....	331
of children associated with		CHLOROFORM	
a putrefactive intestinal		Effect of atropin on chloro-	
flora [L. Porter, G. B. Morris,		form hyperglycemia [E. L. Ross]	
and K. F. Meyer]	166	.....	338
Circulatory reactions to gradu-		CHLOROFORM HYPERGLYCEMIA	
ated exercise in normal		Effect of atropin on chloro-	
children [M. G. Wilson]....	353	form hyperglycemia [E. L. Ross]	
Cows' milk diarrhea in in-		.....	338
fants [A. B. Marfan]	163	CHOLERIFORM DIARRHEA	
Cured cerebrospinal meningi-		Choleriform diarrhea in in-	
tis in a girl of eight months		fants. Etiology and patho-	
[J. Comby and J. Pallegoix]	452	genesis [A. B. Marfan]....	546
Gastric perforation and strep-		CHOLESTEREMIA	
tococcus peritonitis in a		Experimental observations	
nursling one month of age		upon the effect of cholester-	
[Phelip and Fey]	165	emia on the results of the	
New method of diagnosis of		Wassermann test [C. F. Craig and W. C. Williams]	
peritonitis in infancy and		.....	1018
childhood [B. Denzer]....	349	CHOLESTEROL	
On the results of artificial		A study of the nephelometric	
feeding in the nursery of		values of cholesterol and	
Montevideo [A. Mola].....	452	the higher fatty acids [F. A. Csonka]	246
Overmedication in infancy		Cholesterol in cerebrospinal	
and childhood [J. D. Love]	257	fluid [A. Levinson, L. L. Landenberger and K. M. Howell]	
Pathogenesis of laryngeal		.....	1053
spasm in the breast-fed in-		Studies on the resistance of	
fant [A. M. Calderin].....	254	the red blood-cells. III.	
Review of rat-bite fever		The relation of cholesterol	
(Sodoku) in children [J. Comby]	450	to the resistance of the red	
Report of a case of antenatal		blood-cells to the hemolytic	
intestinal obstruction, with			

	PAGE
action of sapotoxin [C. H. Neilson and H. Wheelon]..	1114
CHOREA	
Electrical chorea of Henoch-Bergeron [C. Achard and L. Ramond]	349
Two fatal cases of chorea [L. Morquio]	643
CHRONIC GASTRITIS	
Analysis of chronic gastritis [M. E. Rehfuess]	996
CHRONIC METRITIS	
The treatment of varicose ulcers, chronic metritis and chancreoid with the salts of the ceric earths [A. Frouin]	100
CHRONIC VAGOTONIA	
Acute and chronic vagotonia [D. L. Feilchenfeld]	116
CICATRICES	
Digestion of keloids, cicatrices and buboes with pepsin - hydrochloric acid [E. Ahlswede]	1076
CIRCULATION	
Pulmonary findings due to circulatory changes [J. S. Pritchard and M. A. Mortensen]	305
Studies on the response of the circulation to low oxygen tension. III. Changes in the pacemaker and in conduction during extreme oxygen want as shown in the human electrocardiogram [C. W. Greene and N. C. Gilbert]	823
The circulatory reactions to graduated exercise in normal children [M. G. Wilson]	353
The liberation of free salicylic acid from salicylate in the circulation [P. J. Hanzlik]	945
CIRCUMCISION	
Circumcision [C. H. Sztark].	159
CIRRHOSIS	
Syphilis as an etiologic factor in nodular cirrhosis of the liver [L. J. Owen]	584
CITRIC ACID	
On the identification of citric acid in the tomato [R. E. Kremers, and J. A. Hall]..	67
CLINICAL SURGERY	
Clinical surgery by case histories [A. E. Hertzler]....	376

	PAGE
COCAIN	
A study of the action of cocaine on the splanchnic and cervical sympathetic neuromuscular mechanisms [A. L. Tatum]	239
COCAINISM	
Cocainism described by an addict [W. Mayer-Gross]	324
COCCYGODYNIA	
Coccygodynia [R. C. Hamill]	979
COCOA	
Gastric response to foods. X. The psychic secretion of gastric juices in normal men. XI. The influence of tea, coffee and cocoa upon digestion [R. J. Miller, O. Bergeim, N. E. Rehfuess, and P. B. Hawk]	235
COFFEE	
Gastric response to foods. X. The psychic secretion of gastric juice in normal men. XI. The influence of tea, coffee and cocoa upon digestion [R. J. Miller, O. Bergeim, N. E. Rehfuess, and P. B. Hawk]	235
COLDS	
II. A study of the serological relationships of pneumococci from the upper respiratory tract with special reference to common colds and influenzal conditions [G. M. Cooper, L. Mishulow, and N. E. Blanc]	950
Studies on acute respiratory infections. I. Method of demonstrating microorganisms, including "filtrable viruses", from upper respiratory tract in "health", in "common colds" and in "influenza" with the object of discovering "common strains" [A. W. Williams, M. Nevin and C. Gurley]..	1016
COLECTOMY	
Colectomy [Sir W. A. Lane].	990
COLITIS	
Severe non-dysenteric colitis and recto-colitis [R. Bensaude and E. Antoine]....	393
COLLEGES	
Health activities in colleges and universities [J. Sundwall]	118
COLLOIDS	
Colloidal drugs in the treat-	

	PAGE		PAGE
ment of Bilharzia disease in young people [F. G. Cawston]	300	connected with congenital multiple chondromata [F. P. Weber]	254
COLLOIDAL DRUGS		CONGENITAL PAROXYSMAL CYANOSIS	
Colloidal drugs in the treatment of Bilharzia disease in young people [F. G. Cawston]	300	A case of congenital paroxysmal cyanosis with an x-ray examination of the heart [G. Variot and P. Lantuejoul]	255
COLLOIDAL GOLD CURVE		CONSTIPATION	
The colloidal gold curve in epidemic encephalitis; a preliminary note [T. K... Davis and W. M. Kraus]...	725	A physiologic basis for the treatment of chronic constipation [H. W. Soper]...	497
COLLOIDAL THERAPY		CONSTITUTION	
Colloidal therapy [T. Vergeley]	291	Constitution, hereditary biology and psychiatry [E. Kahn]	90
COLLODION SACS		CORPUSCLE CONCENTRATION	
II. Preparation of collodion sacs for use in bacteriology [F. L. Gates]	936	The part played by the liver in the regulation of blood volume and red corpuscle concentration in acute physiological conditions [P. D. Lamson]	431
COLLOIDOCCLASIS		COWS' MILK DIARRHEA	
Urticaria from fatigue and colloidocclasis [M. J. Jolt-rain]	713	Cows' milk diarrhea in infants [A. B. Marfan]	163
COLON INJECTIONS		CO ₂ CONTENT	
A comparison of rectal with colon injections of epinephrin, with reference to pressor effects and to glycosuria [H. G. Barbour and F. H. Rapoport]	531	The CO ₂ content as a basis for distinguishing heated from unheated milk [V. L. Van Slyke and R. F. Keeler]	246
COLONIC DRAINAGE		CRANIAL FOSSA	
A modern method of colonic drainage [N. P. Norman]..	714	Roentgenologic demonstration of the base of the skull. The posterior cranial fossa [K. Staunig]	750
COLORIMETRIC METHOD		CREATIN	
Determination of in milk by colorimetric method [R. G. Owen and R. Gregg]	719	Creatin and muscle in man [F. S. Hammett]	538
COMPLEMENT-FIXATION		CREATININ	
Comparative values of complement-fixation methods in syphilis [H. D. McIntyre, E. A. North and A. P. McIntyre]	579	Chemical changes in the blood in disease. III. Creatinin [V. C. Myers]	151
Comparison of smear, culture and complement-fixation in chronic gonorrhea in woman [J. D. Smith and M. A. Wilson]	436	CROWN-GALL	
Complement-fixation in influenza with <i>bacillus influenzae</i> antigens [J. V. Cooke]	435	Malignancy of the crown-gall and its analogy to animal cancer [I. Levin and M. Levine]	340
COMPULSION		CULTURE	
Compulsion and depression [D. J. Beck].....	470	Comparison of smear, culture and complement-fixation in chronic gonorrhea in woman [J. D. Smith and M. A. Wilson].....	436
CONGENITAL MALARIA		IV. Preservation of stock cultures of bacteria by freezing and drying [H. F. Swift]	937
A case of congenital malaria [A. Cuadra]	255		
CONGENITAL MULTIPLE CHONDROMATA			
Unilateral dwarfism of limbs			

	PAGE
CYSTITIS	
Chronic cystitis [J. C. Sar- gent]	1074
CYTOLOGY	
Cytologic evidence of the re- generation and the degen- eration of the blood [J. Rieux]	56
DANYSZ'S METHOD	
Two cases of psoriasis treat- ed by Danysz's method [H. W. Barber]	803
DAVAINEA TETRAGONA	
On the life-history of <i>Davai- nea tetragona</i> , a fowl tape- worm [J. E. Ackert]	242
D'HERELLE PHENOMENON	
Studies on the D'Herelle phenomenon [A. Gratia] ..	1012
DEMENTIA PRÆCOX	
Dementia præcox [W. A. White]	853
DENTAL ABSCESSES	
Dental pathology and inter- nal disease [E. Antonius and A. Czepa]	995
DEPRESSION	
Compulsion and depression [D. J. Beck]	470
DERMATITIS	
Poison oak dermatitis [Alder- son and Pruet]	920
Susceptibility to dermatitis from rhus diversiloba [J. B. McNair]	919
DERMATOSIS	
Industrial dermatosis among printers [W. J. McConnell] ..	794
DIABETES	
Angina pectoris of diabetes [M. Kahn]	588
A study of the Wassermann test. Reaction in a large group of supposedly non- syphilitic individuals, in- cluding large groups of dia- betics and nephritics [J. R. Williams]	812
Experimental studies in dia- betes. Series II. Changes in assimilation by altera- tions of body mass [F. M. Allen]	623
Experimental studies in dia- betes. Series II. The in- ternal pancreatic function in relation to body mass and metabolism. The ef- fects of exercise [F. M. Allen and M. B. Wishart] ..	816

	PAGE
Objects and method of diet adjustment in diabetes [R. T. Woodyatt]	1094
Quaternary syphilitic erup- tion in a diabetic [C. Si- mon]	222
The behavior of blood sugar in cases of diabetic neuro- tis and neuritis [K. Grube]	95
Treatment of diabetes [K. Motzfeld]	487
DIABETES INSIPIDUS	
Administration of a pitui- tary extract and histamin in a case of diabetes insipi- dus [R. B. Gibson and F. T. Martin]	514
Diabetes insipidus and puber- ty [T. Silvestri]	739
Diabetes insipidus as a hypo- pituitary syndrome [G. Maranon]	1146
DIABETES MELLITUS	
The relation of hyperthy- roidism to diabetes mellitus [R. Fitz]	572
The retinitis of diabetes mel- litus [H. P. Wagener and R. M. Wilder]	406
The use of a high fat diet in the treatment of diabetes mellitus. Second paper: Blood sugar [L. H. New- burgh and P. L. Marsh] ..	773
DIABETIC ACIDOSIS	
Disturbed protein and fat met- abolism and the origin of diabetic acidosis [M. Labbe] ..	429
DIAPHRAGMATIC HERNIA	
Report of a case of diaphrag- matic hernia [J. E. Creixé] ..	352
DIARRHEA	
A case of fat diarrhea in a nursling [P. Wöringer] ...	1125
Choleric diarrhea in in- fants. Etiology and patho- genesis [A. B. Marfan]	546
The treatment of ordinary (noninfectious) diarrhea in artificially fed infants [A. B. Marfan]	449
DICEPHALUS	
A case of dicephalus [T. C. A. Richard]	951
A double-headed monster [Kahar]	951
DIET	
A diet for pernicious anemia [R. L. Fenlon]	771

	PAGE		PAGE
A nephritic diet sheet [E. F. Walsh]	220	Measles and diphtheria [M. Ponce de Leon]	345
Diet and health: amount and kind of food required [J. Audle]	412	The Shick test, its control and active immunization against diphtheria [A. J. Blau]	334
Stools and their relation to the artificial feeding in infants [I. I. Grover]	453	Studies on the effect of diphtheria on the heart [H. McCulloch]	70
The diet as a postoperative factor in gastro-intestinal disorders [L. H. Levy] ...	209	DIPHTHERIA BACILLI	
The relation of diet to pellagra incidence [J. Goldberger, G. A. Wheeler, and E. Sydenstricker]	10	The diphtheria bacilli and diphtheroids of the adenoids and tonsils [I. Pilot]	1021
The role of the outer covering of cereals in infant feeding [J. Comby]	354	DIPHTHEROIDS	
DIGITALIS		The diphtheria bacilli and diphtheroids of the adenoids and tonsils [I. Pilot]	1021
Clinical experience with a standardized dried aqueous extract of digitalis [H. F. West and J. H. Pratt]	319	DISEASE	
Effect of high temperature upon the action and toxicity of digitalis [A. D. Hirschfelder, J. Bicek, F. J. Kucera and W. Hanson] ..	434	A case of Parkinson's disease following lethargic encephalitis [M. Souques] ..	96
Some newer concepts in digitalis therapy [C. Eggleston] ..	502	Some personal experiences with epidemic respiratory diseases in the Army with some remarks on methods of control [E. D. Kremers] ..	201
The ambulatory patient with cardiac disease with especial reference to digitalis therapy [E. J. Pellini]	503	DISSOTREMA	
The administration of digitalis in the presence of certain acute infections [W. W. Hamburger]	982	Dissotrema synonymous with gyliauchen [S. Gato]	147
The value of large single doses of digitalis in the treatment of heart disease [G. C. Robinson]	101	DIVERTICULUM	
Tincture of digitalis and the infusion in therapeutics [S. Weiss and R. A. Hatcher] ..	706	Broncho-esophageal fistula and traction diverticulum [J. B. Hawes]	968
DIJODYL		Diverticulum of the first portion of the duodenum [E. K. Cullen]	1101
On the treatment of tertiary syphilis with dijodyl [F. W. Oelze]	37	DORSALIS	
DIPHTHERIA		Hypothyroidism and tabes dorsalis [S. E. Jelliffe]	661
Complete heart-block in a case of diphtheria [R. C. Allen]	643	DOUBLE CONGENITAL HYDRONEPHROSIS	
Diphtheria carriers and their treatment with mercurochrome [G. A. Gray and B. I. Meyer]	772	A case of double congenital hydronephrosis [R. W. Johnstone, and F. J. Browne]	898
Diphtheria immunization [A. G. Bosler]	424	DREAMS	
Diphtheria of the skin [M. Winkler]	731	Dreams as the cause of death and disease [M. Chideckel] ..	403
		Endocrine stimulation as affecting dream content [C. S. Finley]	666
		DRUG ADDICTION	
		Narcotic drug addiction. I. The formation of protective substances against morphin [E. J. Pellini and A. D. Greenfield]	437
		DUCT SIGN	
		The duct sign in mumps [D. Cowie]	161

	PAGE
DUODENAL CONTENTS	
Regurgitation of the duodenal contents in the diagnosis of duodenal ulcer [C. B. Udaondo]	99
DUODENAL ULCER	
A comparison of important factors in the diagnosis of gastric and duodenal ulcers [E. W. Rowe]	752
Diagnosis and treatment of gastric and duodenal ulcers [E. F. Stevenson]	210
Regurgitation of the duodenal contents in the diagnosis of duodenal ulcer [C. B. Udaondo]	99
DUODENUM	
Congenital stenosis of the duodenum, general review [J. Comby]	641
Diverticulum of the first portion of the duodenum [E. K. Cullen]	1101
The bacteriology of the fast-ing stomach and duodenum. A study based on the findings in thirty dogs [P. H. Poppens]	818
Studies on the action of various salts on the liver after their introduction into the duodenum [M. Einhorn]	1017
DYSENTERY	
Clinical notes on bacillary dysentery during childhood [P. Schultz-Bascho]	953
Dysentery epidemic at Mannheim [L. Lauber]	127
DYSENTERY BACILLI	
The growth of dysentery bacilli on albumin-free media [F. v. Werdt, and F. Kopatschek]	65
EAR	
Diseases of the ear (Otitis media) [P. D. Kerrison]...	800
ECLAMPSIA	
A new procedure in the treatment of eclampsia [H. J. Davidson]	566
ECZEMA	
Eczema in the breast-fed baby, and protein sensitization [E. S. O'Keefe]	1023
Protein sensitization in eczema [M. Ramirez]	310
EDEMA	
Beri-beri and inanition edema [Zambrzycki]	25

	PAGE
EFFORT SYNDROME	
The effort syndrome together with a consideration of the significance of certain murmurs [A. E. Cohn]	702
The etiology of effort syndrome [H. O. Gunewardene]	763
ELECTRICAL CHOREA	
Electrical chorea of Henoch-Bergeron [C. Achard and L. Ramond]	349
ELECTRIC CURRENTS	
Pathology from various electric-currents [S. Jellinek].	841
ELECTRIC CURRENT INJURY	
Accidental injuries from electric currents [Zalisky and Brown]	879
ELECTROCARDIOGRAM	
Origin of the ventricular phases of the electrocardiogram [DeMeyer].....	423
ELECTROCARDIOGRAPHIC STUDIES	
Electrocardiographic studies in pregnancy [H. Sachs]..	423
ELECTROLYSIS	
The treatment of hemorrhoids by electrolysis [T.C. Webb]	846
ELEPHANTIASIS	
Elephantiasis [W. H. Strother]	869
Elephantiasis with reference to syphilis [J. Lintz]	582
Elephantiasis with reference to syphilis [J. Lintz]	867
Tuberculosis of the lymphatic vessels of the leg and the second metacarpal bone. Secondary elephantiasis [W. Martin]	875
EMOTIONS	
James' theory of the emotions in relation to the adrenal glands [C. E. Kieley].....	856
EMPHYSEMA	
Observations on the pathologic physiology of chronic pulmonary emphysema [R. W. Scott].....	423
EMPYEMA	
Experimental streptococcus pneumonia and empyema [F. P. Gay and B. Rhodes].	1107
The surgical treatment of empyema by a closed method [A. E. Mozingo]	973
Tuberculous empyema [G. Kalb]	781
ENCEPHALITIS LETHARGICA	
Encephalitis lethargica [A.	

	PAGE
Strumpell]	568
Endocrine stimulation as affecting dream content [C. S. Finley]	666
Immunological distinctions of encephalitis and poliomyelitis [H. L. Amoss]	725
The cerebrospinal fluid in epidemic encephalitis [P. Boveri]	571
The virus of encephalitis lethargica [Levaditi and P. Harvier]	189
"ENCEPHALITIS" NEONATORUM	
"Encephalitis" neonatorum [F. Harbitz]	832
ENDOCARDIUM	
The injection of the Purkinje fibers and the lymphatics of the endocardium [J. Trias]	430
ENDOCRINE GLANDS	
Epidemic encephalitis, residual symptoms, chronicity, and relapsing tendency [F. A. Ely]	667
The role of the endocrine glands in certain menstrual disorders [E. Novak]	327
ENDOCRINE SYNDROMES	
The classical endocrine syndromes [L. F. Barker]....	755
ENDOTHELIAL REACTIONS	
Studies on endothelial reactions. IV. The endothelium in experimental general miliary tuberculosis in rabbits [N. C. Foot].....	721
EOSINOPHILIA	
Eosinophilia in muscular rheumatism [I. Synwoldt].	215
EPIDEMIC ENCEPHALITIS	
Epidemic encephalitis: observations on a series of five cases; autopsy findings; predominating symptomatology; relation to influenza; personal conclusions [K. M. Lewis, G. King, and R. Dinegar]	1054
The colloidal gold curve in epidemic encephalitis; a preliminary note [T. K. Davis and W. M. Kraus] ..	725
EPIDEMIC RESPIRATORY DISEASES	
Some personal experiences with epidemic respiratory diseases in the Army, with some remarks on methods of control [E. D. Kremers] 201	

	PAGE
EPIDERMOPHYTOSIS	
Epidermophytosis of the hands and feet [H. Goodman]	696
EPIDIDYMIS	
Tuberculosis of epididymis and its operative treatment [O. Zuckerkandl]	1072
EPIDURAL INJECTIONS	
Treatment of sciatic neuralgia with epidural injections [P. H. Feuillade]....	506
EPILEPSY	
A comparison of rectal with colon injections of epinephrin, with reference to pressor effects and to glycosuria [H. G. Barbour and F. H. Rapoport]	531
Influenza and epilepsy: Further studies upon the relation of mental disease and influenza [K. A. Menninger]	1055
Latent epilepsy [C. Lupi]....	191
Luminal in epilepsy [F. Bruhl]	479
Serumtherapy in epilepsy [W. Held]	94
Some cases of epilepsy and their treatment [L. Garri-nett]	851
EPINEPHRIN	
Bronchial asthma: response to pilocarpin and epinephrin [H. L. Alexander and R. Paddock]	410
Epinephrin hypersensitivity and its relation to hyperthyroidism [F. W. Peabody, C. C. Sturgis, E. M. Tompkins, and J. T. Wearn]	1050
Further observations on the relation of the spinal cord to the spontaneous liberation of epinephrin from the adrenals, and the action of strychnin after cervical cord section [G. N. Stewart and J. M. Rogoff].....	342
On the duration of constriction of blood-vessels by epinephrin [S. J. Meltzer, and J. Auer]	946
The action of drugs upon the output of epinephrin from the adrenals [G. N. Stewart and J. M. Rogoff]....	823

INDEX OF SUBJECTS

iv

	PAGE
EPINEPHRIN HYPERSENSITIVENESS TEST	
Studies on disorders of the thyroid. II. Further experiences with the epinephrin hypersensitiveness test, with especial reference to "diffuse adenomatosis" of the thyroid gland [E. Goetsch]	567
EPISTAXIS	
Hereditary hemorrhagic telangiectasia with recurring (familial) hereditary epistaxis [H. I. Goldstein]....	401
Telangiectases of the face and mucous membranes of the nose and throat associated with severe epistaxis [W. Freudenthal]...	677
EPITHELIOMA	
Papillary epithelioma of the kidney pelvis [E. M. Miller and R. H. Herbst].....	700
EQUILIBRIUM	
Labyrinth and equilibrium. I. A comparison of the effect of removal of the otolith organs and of the semi-circular canals [S. S. Maxwell]	333
Renal activity and the acid-base equilibrium [T. Nagamori]	337
ERGOT	
Ergot in typhoid [L. Atherton]	1074
EROSION	
Irritation of the vagus and hemorrhagic erosions of the stomach [K. Nicolaysen]..	245
ESOPHAGEAL FISTULA	
Broncho-esophageal fistula and traction diverticulum [J. B. Hawes]	968
ESOPHAGUS	
Hemorrhage from the stomach and esophagus [F. B. Lund and J. A. Foley]	605
Spasmodic stenosis of the esophagus [E. B. Freeman]	805
ETHER	
The effect of ether anesthesia on the alkali reserve [W. S. Carter]	234
ETHER THERAPY	
Peritonitis: Ether therapy and prophylaxis [Bentlin]	883
ETHYLHYDROCUPREIN	
Ethylhydrocuprein in ophthalmology [Cheinisse] ...	989

	PAGE
ETHYLHYDROCUPREIN HYDROCHLORIDE	
Chemotherapeutic studies with ethylhydrocuprein hydrochloride in experimental pneumococcus pleuritis [J. A. Kolmer, and J. R. Sands]	941
EXERCISE	
Circulatory reactions to graduated exercise in normal children [M. G. Wilson]	353
Exercise tolerance of children with heart disease [M. G. Wilson]	757
EXOPHTHALMIC GOITER	
Attempt to detect thyroid secretion in blood obtained from the glands of individuals with exophthalmic goiter and other conditions involving the thyroid. [J. M. Rogoff and H. Goldblatt]	1055
Emotional exophthalmic goiter and syphilis [C. Pfeiffer]	405
The basal metabolic rate in exophthalmic goiter with a brief description of the technic used at the Mayo Clinic [I. Sandiford]	146
EXPRESSION	
Disorders of symbolic thinking and expression [H. Head]	471
EYES	
Injury of eyes by roentgen rays [Birch-Hirschfeld]...	750
FACE	
Telangiectases of the face and mucous membranes of the nose and throat associated with severe epistaxis [W. Freudenthal]	677
FALLOPIAN TUBE	
Adenomyoma of the fallopian tube [R. E. Mahle]	914
FAMILIAL HEREDITARY EPISTAXIS	
Hereditary hemorrhagic telangiectasia with recurring (familial) hereditary epistaxis [H. I. Goldstein]....	401
FAT DIET	
The use of a high fat diet in the treatment of diabetes mellitus. Second paper: Blood sugar [L. H. Newburgh and P. L. Marsh]...	773
FAT METABOLISM	
Disturbed protein and fat metabolism and the origin	

	PAGE
of diabetic acidosis [M. Labbe]	429
FATIGUE	
Shop standards and fatigue [B. T. Newman]	486
Urticaria from fatigue and colloidoclasia [M. J. Jolt-rain]	713
Feeblemindedness	
Feeblemindedness in hereditary neurosyphilis [O. J. Raeder]	955
FEET	
Epidermophytosis of the hands and feet [H. Goodman]	696
The anatomy of feet and their full efficiency [M.M. Bacon]	695
FETUS	
X-ray pictures of the bones in the diagnosis of syphilis in the fetus and in young infants [P. G. Shipley, J. W. Pearson, A. A. Weech, and and C. H. Greene]	1141
FEVER	
A peculiar fever of infancy probably due to depletion of the water reserve of the body [C. G. Grulee and B. E. Bonar]	955
Heart in scarlet fever [H. A. Rosenbaum]	420
Review of rat-bite fever (Soboku) in children [J. Comby]	450
FIBERS	
The injection of the Purkinje fibers and the lymphatics of the endocardium [J. Trias]	430
FIBRINOUS BRONCHITIS	
Two cases of fibrinous bronchitis, with a review of the literature [I. C. Walker]..	219
FICTITIOUS MEAL TEST	
The "fictitious meal test" in gastric pathology [Dupuy].	43
FILARIASIS	
Further work on antimony intravenously in filariasis [Sir L. Rogers]	140
FOCAL INFECTIONS	
Chronic focal infection as affecting the nervous system [W. G. Stearns]	765
Chronic focal infections as affecting the skin [E. L. McEwen]	519
Focal infection and selective localization of streptococci	

	PAGE
in pyelonephritis [H. C. Bumpus and J. G. Meisser]	821
Focal infection and elective localization in the etiology of myositis [E. C. Rosenow and W. Ashby]	1093
Focal infections and their clinical relations to metastases in the female genitalia [A. B. Keyes].....	517
FOCAL REACTION	
The focal reaction [W. F. Peterson]	790
FOLLICULAR TONSILLITIS	
Complete transitory motor aphasia following follicular tonsillitis, followed by logorrhoea [G. Funaioli]	186
FOOD	
Gastric response to foods. X. The psychic secretion of gastric juice in normal men. XI. The influence of tea, coffee and cocoa upon digestion [R. J. Miller, O. Bergeim, N. E. Reh fuss, P. B. Hawk]	235
FOOT	
Malignant melanomata: Especially those occurring on the heel and sole of the foot [W. H. D. Stevenson]	787
FOOT DISEASE	
Foot and mouth disease in human beings [E. Veiel]....	392
FORCED RESPIRATION	
A study of forced respiration: experimental production of tetany [S. B. Grant and A. Goldman]	341
FOREIGN BODIES	
The symptomatology and diagnosis of foreign bodies in the air and food passages. Based upon a study of 789 cases [C. Jackson]	970
FORENSIC HYSTERIA	
Feeblemindedness in forensic hysteria [G. Jølgersma]	855
FRIEDLANDER BACILLUS	
The mechanism of the bacillus carrier state with special reference to the Friedlander bacillus [A. L. Bloomfield]	930
FRENUM	
Bifid appearance of the tongue due to a short frenum [V. Veau and C. Ruppe]... ..	838
FROEHLICH'S SYNDROME	
Hypophyseal disorders with	

	PAGE		PAGE
special reference to Froehlich's syndrome [H. G. Beck]	473	mena of a resting stomach [M. E. Rehfuss and P. B. Hawk]	729
FUSIFORM BACILLI		Variations of acid concentration in different portions of the gastric chyme and its relation to clinical methods of gastric analysis [F. D. Gorham]	621
Gastric disturbances in appendicitis. Notes on the fusiform bacilli of Vincent's angina [S. R. Gifford]	135	GASTRIC CARCINOMA	
GALL-BLADDER		Relation of differentiation and lymphocytic infiltration to post-operative longevity in gastric carcinoma [W. C. MacCarty, and A. E. Mahle]	1108
A plea for a routine x-ray examination of the gall-bladder region in every chronic abdomen [B. R. Kirklin]	751	GASTRIC CHYME	
Collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (gastro-intestinal tract) [I. S. Hirsch] ..	177	Variations of acid concentration in different portions of the gastric chyme, and its relation to clinical methods of gastric analysis [F. D. Gorham]	621
Early lesions in the gall-bladder [W. C. MacCarty and J. R. Corkery]	218	GASTRIC DISEASE	
Pathogenesis and physiopathology of gall-bladder and biliary-tract lesions [V. A. Lapenta]	602	Papaverin in x-ray diagnosis of gastric disease. Report of 250 cases [S. Szerb and V. Revesz]	559
Some observation of the non-surgical drainage of pathologic gall-bladders [G. M. Niles and H. N. Kraf]....	415	GASTRIC DISTURBANCES	
The co-existence of gall-bladder and appendiceal infection [W. A. Quimby]	1086	dicular inflammation [S. Floersheim]	320
The concentrating activity of the gall-bladder [P. Rous and P. D. McMaster]	1015	Gastric disturbances following cerebral concussion [M. Loeper, and C. Wagner] ..	50
GALLOP RHYTHM		GASTRIC JUICE	
Two cases of gallop rhythm in young children without renal lesions [A. D'Espine].	1132	Gastric response to foods. X. The psychic secretion of gastric juice in normal men. XI. The influence of tea, coffee and cocoa upon digestion [R. J. Miller, O. Bergeim, N. E. Rehfuss, P. B. Hawk]	235
GANGLION OF WRISBERG		GASTRIC PATHOLOGY	
Note on morphology of ganglion of Wrisberg [Laignel-Lavastine]	432	The "fictitious meal test" in gastric pathology [Dupuy].	43
Pathologic histology of ganglion of Wrisberg [Laignel-Lavastine]	433	GASTRIC PERFORATION	
GANGRENE		Gastric perforation and streptococcus peritonitis in a nursing one month of age [Phelip and Fey]	165
Gangrene due to carbon monoxide poisoning [V. D. Thandavaroyan]	878	GASTRIC RESPONSE	
GASTRIC ANACIDITY		Gastric response to foods. X. The psychic secretion of gastric juice in normal men. XI. The influence of tea, coffee and cocoa upon digestion [R. J. Miller, O. Bergeim, N. E. Rehfuss, P. B. Hawk]	235
Pernicious anemia. A clinical study of one hundred and fifty consecutive cases with special reference to gastric anacidity [S. A. Levine and W. S. Ladd] ..	984	GASTRIC SECRETIONS	
GASTRIC ANALYSIS		Diagnosis of carcinoma of the	
Gastric analysis, the interdigestive phase or the principles governing the pheno-			

	PAGE
stomach, considered from a standpoint of gastric secretions [R. Strauss]	104
Notes on gastric secretions in neurocirculatory asthenia [J. A. Musser]	247
The influence of roentgen rays on the gastric secretion [F. Wachter]	842
GASTRIC SUPERACIDITY	
Gastric superacidity, causation and treatment [W. van V. Hayes]	46
GASTRIC ULCERS	
A comparison of important factors in the diagnosis of gastric and duodenal ulcers [E. W. Rowe]	752
Diagnosis and treatment of gastric and duodenal ulcers [E. F. Stevenson]	210
GASTRITIS	
Acid gastritis [R. H. Rose]..	213
GASTROCHRONORRHEA	
Alimentary hypersecretion; gastric hypersecretion; gastrochronorrhea [B. B. Crohn and J. Reiss]	515
GASTRO-INTESTINAL DISORDERS	
Remarks on some gastro-intestinal disorders [Hurst].	891
The diet as a postoperative factor in gastro-intestinal disorders [L. H. Levy]	209
GASTRO-INTESTINAL SYMPTOMS	
The significance of some gastro-intestinal symptoms [A. L. Holland]	1063
GASTRO-INTESTINAL TRACT	
Benign tumors of the gastro-intestinal tract [E. E. H. Boyer]	609
GENITALIA	
Focal infections and their clinical relations to metastases in the female genitalia [A. B. Keyes]	517
GENITO-URINARY ORGANS	
On the absorption of local anesthetics through the genito-urinary organs [D. I. Macht]	538
GENTIAN VIOLET	
Further studies on the behavior of bacteria toward gentian violet. Isolation of a gentian-positive strain from a culture of a gentian-negative organism (a "strain-within-a-strain" variant) [J. W. Churchman]	1012

	PAGE
GLANDERS	
The value of the intrapalpebral Mallein test in the diagnosis of glanders [E. H. Mason and R. V. B. Emmons]	250
GLUCOSE	
Some observations on the use of vaccines and glucose in the treatment of influenza and bronchopneumonia [H. H. Koons]	311
GLUCOSURIA	
Influence of calcium on glucosuria [A. G. Phocas].....	408
GLYCEROL	
Experimental studies on the nasopharyngeal secretions from influenza patients. II. Filterability and resistance to glycerol [P. K. Olitsky and F. L. Gates]	615
GLYCOSURIA	
A comparison of rectal with colon injections of epinephrin, with reference to pressor effects and to glycosuria [H. G. Barbour and F. H. Rapoport]	531
GOITER	
Classification of goiter: analysis of one hundred cases [C. Williams]	600
Emotional exophthalmic goiter and syphilis [C. Pfeiffer]	405
Goiter of the tongue [E. Kohl]	590
Observations on the basal metabolism estimations in the goiter clinic of the University Hospital [C. H. Frazier and F. H. Adler]..	1002
One thousand one hundred forty-six goiters in one thousand seven hundred eighty-three persons [S. Levin]	694
Radium in toxic goiter. Its treatment [W.H.B. Aikins]	927
The management of toxic goiter with radiation [J. T. Stevens]	1034
GONOCOCCUS	
Notes on the cultivation of the gonococcus [C. E. Jenkins]	1117
GONORRHEA	
Catarrh of the male urethra of non-gonorrheal origin, and its treatment with "akatinol" [M. Tieche]....	488

	PAGE
Comparison of smear, culture and complement-fixation in chronic gonorrhea in woman [J. D. Smith and M. A. Wilson].....	436
The treatment of acute gonorrhea in females [F. B. Block].....	325
GRAVES' DISEASE	
Slowing of the pulse in Graves' disease during sleep [G. Osti]	323
GROUP DIAGNOSIS	
Group diagnosis and group therapy [L. F. Barker] ...	304
GROUP THERAPY	
Group diagnosis and group therapy [L. F. Barker]....	304
GYLLAUCHEN	
Dissotrema synonymous with gyllauchen [S. Goto]	147
GYNECOMASTIA	
Gynecomastia [F. S. Hammett]	478
HALLUCINATIONS	
Origin of hallucinations [H. Bickel]	477
The localization of hallucinations [H. I. Gosline].....	381
HAMMERING METHOD	
Exploration of the abdominal painful points by the hammering method [G. Hayem]	24
HANDS	
Epidermophytosis of the hands and feet [H. Goodman]	696
HARE LIP	
A case of median superior hare lip [V. Veau and C. Ruppe]	1131
HAY-FEVER	
Anaphylaxis in asthma and hay-fever [M. Bisailon and R. W. Matson]	617
Anaphylaxis in man, its bearing upon hay-fever, animal and food idiosyncrasy, and asthma [C. McNeil]	1077
Sensitization in bronchial asthma and hay-fever [A. H. W. Caulfield]	681
HEAD	
Collected abstract of the literature on roentgenology for the year 1919. The head [I. S. Hirsch]	451
Neuralgias of the head [M. W. Janowski]	474

	PAGE
HEALTH ACTIVITY	
Health activities in colleges and universities [J. Sundwall]	118
HEAT	
Effect of work and heat on the hydrogen concentration of the sweat [G. A. Talbert]	51
HEAT PRODUCTION	
The effect of the subcutaneous injection of adrenalin chlorid on the heat production, blood-pressure, and pulse-rate in man [I. Sandiford]	55
The four phases of heat-production of muscle [A. V. Hill]	335
HEART	
A case of congenital paroxysmal cyanosis with an x-ray examination of the heart [G. Variot and P. Lantuejoul]	255
Comparative effects of morphin and alkaloids of the benzylisoquinolin group on cardiac muscle [J. J. Hanzlik]	943
Functioning of the heart in cardiac disease [J. A. Oille]	398
Heart in scarlet fever [H. A. Rosenbattin]	420
Hypertrophy of the right heart. Measurements by the method of W. Muller [J. Bret]	424
Mitral insufficiency in polyarthritis and syphilis. Influence of antisiphilitis therapy on heart disease [E. Attinger]	563
Neurogenic irregularities of the heart in adults [A. M. Wedd]	1004
On the causation of cardiac hypertrophy and high blood-pressure in renal disease [G. Jawein].....	397
On the prognosis and treatment of important cardiac arrhythmias [K. Grassman]	223
Quinin in auricular fibrillation and flutter [P. Schrumpt]	5
Physical exercise in heart disease [T. B. Barringer].....	1003
Relation of catalase to heart activity [R. J. Seymour]..	436
Report of a case of congeni-	

	PAGE
tal heart disease with complete auriculoventricular dissociation presenting unusual features. [F. A. Willius]	396
Roentgenologic demonstration of the heart in pericardial effusion [H. Kloiber and H. Hochschild]	560
Studies on cardiac dynamics [M. Banuelos]	3
Studies on the effect of diphtheria on the heart [H. McCulloch]	70
Syphilis of the heart [H. Brooks]	707
The action of adrenalin on the heart [W. J. R. Heinekamp]	344
The action of caffein, theobromin and theophyllin on the mammalian and batrachian heart [R. St. A. Heathcote]	544
The first heart sound and the presystolic murmur [W. D. Reid]	500
The soldier's heart and war neurosis. A study in symptomatology [Sir J. MacKenzie]	183
The value of large single doses of digitalis in the treatment of heart disease [G. C. Robinson]	101
Ultraviolet rays and a new basis in the treatment of diseases of the heart and blood-vessels [Schaecker] ...	749
HEART-BLOCK	
Complete heart-block in a case of diphtheria [R. C. Allen]	643
HEART DISEASE	
Exercise tolerance of children with heart disease [M. G. Wilson]	737
HEART-FAILURE	
The etiology of heart-failure [T. B. Barringer, Jr.]....	704
HEART SOUNDS	
The auricular heart sounds [W. D. Reid]	705
HEEL	
Malignant melanomata: Especially those occurring on the heel and sole of the foot [W. H. D. Stevenson] ..	787
HELMINTHIC INFESTATIONS	
The diagnosis of more common helminthic infestations of man [J. P. Hickey] ..	17

	PAGE
Etiology, diagnosis and significance of hematuria of the genito-urinary tract [W. T. Wallace]	911
Symptomless hematuria: A plea for early investigation [J. B. MacAlpine]	913
HEMATURIA	
Hematuria in pregnancy [J. K. Quigley]	1078
The significance of hematuria. A study of one hundred personal cases [A. L. Chute]	6
HEMICRANIOSITIS	
Hemicraniositis [A. Leri]....	838
HEMOCHROMATOSIS	
Hemochromatosis. Report of four cases [W. B. Blanton and W. Healey]	686
HEMOLYSINS	
Hemolysins from parasitic worms [B. Schwartz]	436
HEMOLYTIC ANEMIA	
Chronic hemolytic anemia. "The pernicious anemia of pregnancy" [G. R. Minot] ..	923
HEMOLYTIC STREPTOCOCCI	
Hemolytic streptococci of the appendix vermiformis [A. Kraft]	542
HEMOPHILIA	
Blood changes in a case of hemophilia after transfusion [H. A. Bulger]	540
HEMORRHAGE	
Hemorrhage from the stomach and esophagus [F. B. Lund and J. A. Foley]	605
Phlebectasia as a cause of tracheal hemorrhage [B. Freystadt]	394
Reactions to hemorrhage [W. J. Meek and J.A.E. Eyster] ..	698
The leukocytes after hemorrhages [J. H. Musser]	1001
HEMORRHAGIC EROSIONS	
Irritation of the vagus and hemorrhagic erosions of the stomach [K. Nicolaysen] ..	245
HEMORRHAGIC MENINGOENCEPHALITIS	
Hemorrhagic meningoencephalitis in anthrax [S. J. House]	377
HEMORRHOIDS	
The treatment of hemorrhoids by electrolysis [T. C. Webb]	846
HEPATIC ARTERY	
Aneurysm of the hepatic ar-	

	PAGE
tery: with report of a case [E. Weiss]	989
HEPATIC COLIC	
A dorsal point of tenderness in hepatic colic [R. Pauly]	225
HEREDITARY BIOLOGY	
Constitution, hereditary bi- ology and psychiatry [E. Kahn]	90
HEREDITARY EPISTAXIS	
Hereditary hemorrhagic tel- angiectasia with recurring (familial) hereditary epis- taxis [H. I. Goldstein]....	401
HEREDITARY HEMORRHAGIC TEL- ANGIECTASIA	
Hereditary hemorrhagic tel- angiectasia with recurring (familial) hereditary epis- taxis [H. I. Goldstein]	401
HERNIA	
Report of a case of dia- phragmatic hernia [J. E. Creive]	352
Umbilical hernia [A. P. C. Ashhurst]	915
HERPES IRIS	
Some cosmopolitan Sudan skin infections. I. Herpes Iris [A. J. Chalmers, and H. Macdonald]	105
HETEROTOPY	
Concerning heterotopy of the plexus choroidei [S. Kita- bayashi]	93
HICCOUGH	
Epidemic hiccough [J. L'Hermitte]	195
Notes on epidemic hiccough [M. L. Rivet]	196
HIP	
Functional results of success- fully reduced congenital dislocation of the hip [E. L. Evans]	640
HIRSCHSPRUNG'S DISEASE	
Hirschsprung's disease [K. Retzlaff]	133
Hirschsprung's disease [J. G. Ware]	1137
HISTAMIN	
Administration of a pituitary extract and histamin in a case of diabetes insipidus [R. B. Gibson and F. T. Martin]	514
HISTAMIN SHOCK	
Conditions of the capillaries in histamin shock [A. R. Rich]	616

	PAGE
HODGKIN'S DISEASE	
A case of Hodgkin's disease of mediastinal form [L. Ribadeau-Dumas]	787
An outline of twelve years study of Hodgkin's disease and allied affections [J. L. Yates]	887
Hodgkin's disease [C. J. Broc- man]	886
HOOKWORM	
The technic of chenopodium administration in hook- worm disease [S. T. Darling and W. G. Smillie].....	409
HORSE SERUM	
Precipitin response in the blood of rabbits following subarachnoid injections of horse serum [H. L. Alex- ander]	820
HOT AIR	
Treatment of salivary fist- ulae by massage and hot air [P. Kouindjy]	609
HUMAN PARASITOLOGY	
Human parasitology [D. Ri- vas]	317
HUTINEL'S DISEASE	
Cardio-cirrhosis (Hutinel's or Pick's disease) — Etiology [J. C. Navarro]	1125
HYDROCELE	
Hydrocele [Pels-Leusden] ...	716
HYDROCEPHALUS	
Notes on acquired hydrocep- halus [R. Gunzel].....	476
HYDROGEN	
Effect of work and heat on the hydrogen concentra- tion of the sweat [G. A. Talbert]	51
HYDRONEPHROMA	
Hydronephroma of kidney; secondary growth of ureter [J. W. T. Walker]	915
HYDRONEPHROSIS	
A case of double congenital hydronephrosis [R. W. Johnstone and F. J. Browne]	898
HYMENOLEPIS CARIOCA	
On the life-history of the chicken cestode, <i>hymenolep- is carioca</i> [J. E. Guber- let]	54
HYMENOLEPIS NANA	
Hymenolepis nana; possible cercocystis stage [A. Gold- man]	108

	PAGE		PAGE
HYPERGLYCEMIA		HYPOPHYSEAL DISORDERS	
Effect of atropin on chloroform hyperglycemia [E. L. Ross]	338	Hypophyseal disorders with special reference to Froehlich's syndrome [H. G. Beck]	473
HYPERGLYCORACHIA		HYPOPHYSIS	
Hyperglycorachia in epidemic encephalitis [C. Dopfer]...	380	Classification of disorders of the hypophysis [W. Engelbach]	381
HYPERSECRETION		HYPOPITUITARY SYNDROME	
Alimentary hypersecretion; gastric hypersecretion; gastrochronorrhea [B. B. Crohn and J. Reiss].....	515	Diabetes insipidus as a hypopituitary syndrome [G. Maranon]	1146
HYPERSENSITIVENESS		HYPOTHPRESIA	
Adrenalin hypersensitiveness in definite and unproved pulmonary tuberculosis (F. H. Heise, and B. Brown)..	199	The states of malnutrition in early infancy,—hypothrepsia and athrepsia [A. B. Marfan]	1126
Case of hypersensitiveness to cow's milk [E. A. Park]...	441	HYPOTHYROIDISM	
Hypersensitiveness: Anaphylaxis and allergy [A. F. Coca]	65	Concerning the diagnosis and treatment of hypothyroidism [N. W. Janney, and H. E. Henderson]	16
HYPERTHYROIDISM		HYSTERIA	
Adenoma of the thyroid with hyperthyroidism (thyrotoxic adenoma). A history of the recognition of this disease as a clinical entity. A study of the symptomatology with basal metabolic rates [W. M. Boothby]....	1148	Feeble-mindedness in forensic hysteria [G. Jellgersma]	855
A study of the correlation of the basal metabolism and pulse-rate in patients with hyperthyroidism [C. C. Sturgis and E. H. Tompkins]	224	Monocular polyopia in hysteria [P. Schilder]	91
Epinephrin hypersensitiveness and its relation to hyperthyroidism [F. W. Peabody, C. C. Sturgis, E. M. Tompkins, J. T. Wearn]..	1050	The problems of hysteria [J. Lewin]	286
Hyperthyroidism [M. F. Morris]	663	HYSTERICAL VOMITING	
Hyperthyroidism in a child [M. H. Frantz]	637	Hysterical vomiting [A. F. Hurst]	205
Hypothyroidism and tabes dorsalis [S. E. Jelliffe] ...	661	ICTERUS	
The relation of hyperthyroidism to diabetes mellitus [R. Fitz]	572	Chronic syphilitic icterus in adults [Castaigne and Pailard]	422
HYPERTROPHY		IDIOCY	
Hypertrophy of the right heart. Measurements by the method of W. Muller [J. Bret]	434	The Mongolian idiot [W. Timme]	659
On the causation of cardiac hypertrophy and high blood-pressure in renal disease [G. Jawein]	397	IDIOSYNCRASY	
		Some examples of idiosyncrasy [T. H. Butler]	899
		IMMUNITY	
		General leukocytic response of the guinea pig during the reaction of artificial immunity in experimental tuberculous infection [R. G. Hussey]	815
		The relation of the rate of absorption of antigen to the production of immunity [M. W. Cook]	60
		IMMUNIZATION	
		Active immunization by means of non-virulent and nontoxic living tubercle bacilli [C. D. Aaron]	782

	PAGE
IMPETIGA CONTAGIOSA	
Impetiga contagiosa [D. L. Farley]	987
INFANT MORTALITY	
The birth-rate and infant mortality [P. Nobecourt and G. Schreiber]	346
INFANTILE PARALYSIS	
A report of the Harvard infantile paralysis commission on the diagnosis of acute cases in 1920, with special reference to the incidence of cases without paralysis [F. W. Peabody] ..	1023
INFECTIOUS DISEASE	
Etiology of infectious diseases [A. Tobieitz]	922
INFLUENZA	
Acute respiratory infection in man following inoculation with virulent bacillus influenzae [R. L. Cecil and G. I. Steffen]	964
Agglutination in influenza [K. Utheim]	311
A report of an epidemic of influenza in an Army post of the American Expeditionary Forces in France [A. M. Chesney, and F. W. Snow]	197
Chronic lung disease following the influenza pandemic of 1918-1919 [M. J. Radin] ..	421
Classification of streptococcus. I. Streptococci isolated from normal throats. II. Streptococci isolated from influenza throats. Classification by sugar fermentation [L. Arnold]	142
Complement-fixation in influenza with <i>bacillus influenzae</i> antigens [J. V. Cooke]	435
Cultivation of a filterable organism from the nasopharyngeal washings in influenza [L. Loewe and F. D. Zeman]	614
Effect of vaccination against influenza and some other respiratory infections [E. O. Jordan and W. B. Sharp]	1079
The pathology of influenza as seen in those with chronic mental disease [N. D. C. Lewis]	1150
Epidemic encephalitis: observations on a series of five	

	PAGE
cases; autopsy findings; predominating symptomatology; relation to influenza; personal conclusions [K. M. Lewis, G. King, and R. Dinegar]	1054
Experimental studies of the nasopharyngeal secretions from influenza patients. IV. Anaerobic cultivation [P. Olitsky, and F. L. Gates] ..	948
Experimental studies on the nasopharyngeal secretions from influenza patients. II. Filterability and resistance to glycerol [P. K. Olitsky and F. L. Gates]	615
Experimental studies of the nasopharyngeal secretions from influenza patients. III. Studies of the concurrent infections [P. K. Olitsky, and F. L. Gates]	949
Experimental studies of the nasopharyngeal secretions from influenza patients. V. Bacterium pneumosintes and concurrent infections [P. K. Olitsky and F. Gates]	1018
Influenza [C. Frothingham] ..	683
Influenza [C. Frothingham].	976
Influenza and epilepsy: Further studies upon the relation of mental disease and influenza [K. A. Menninger]	1055
Influenza pandemics depend upon certain anticyclonic weather conditions for their development [C. M. Richter]	613
Influenza studies. Effect of vaccination against influenza and some other respiratory infections [E. O. Jordan and W. B. Sharp].	772
VI. A serological study of the bacillus of Pfeiffer. I. The etiological relation of the bacillus of Pfeiffer to influenza [A. F. Coca, and M. F. Kelley]	932
II. A study of the serological relationships of pneumococci from the upper respiratory tract with special reference to common colds and influenzal conditions [G. M. Cooper, L. Mishulow, and N. E. Blanc]	950

	PAGE		PAGE
Epidemiology and etiology of influenza [A. J. McLaughlin]	29	INORGANIC MOTOR DISTURBANCES	
Pneumonia following influenza in the camps in the United States [E. E. Irons]	592	The infectious or toxic origin of inorganic motor disturbances [M. Briand and A. Rouquier]	285
Pulmonary sequels of influenza [M. Fishberg]	596	INSANITY	
Some observations of the use of vaccines and glucose in the treatment of influenza and bronchopneumonia [H. H. Koons]	311	Clinical and genealogic studies on moral insanity [F. Meggendorfer]	925
Studies on acute respiratory infections. I. Method of demonstrating microorganisms, including "filtrable viruses", from upper respiratory tract in "health", in "common colds" and in "influenza" with the object of discovering "common strains" [A. W. Williams, M. Nevin and C. Gurley]	1016	INTERSTITIAL GLAND	
The antigenic property of the Pfeiffer bacillus as related to its value in the prophylaxis of epidemic influenza [C. W. Duval and W. H. Harris]	51	The interstitial gland—what it is and its supposed function [W. H. Morley]	574
The leukocytic picture in influenza [C. H. Bunting] ..	1001	INTERVENTRICULAR COMMUNICATION	
Thrombophlebitis during the puerperium following influenza, with a report of cases [L. F. Smead]	1083	Congenital stenosis of pulmonary artery with interventricular communication [O. Josue]	31
INFLUENZA BACILLI		INTESTINAL OBSTRUCTION	
IV. Further studies on grouping of influenza bacilli with special reference to permanence of type in the carrier [O. R. Povitsky, and H. T. Denny]	948	Report of a case of antenatal intestinal obstruction, with some remarks on other forms of intestinal obstruction in infants [S. A. Owen and N. Lake]	447
V. Accidental inoculation of influenza bacilli on the mucous membranes of healthy persons with development of infection in at least one. Persistence of type characteristics of the bacilli [W. H. Park and G. Cooper] ..	726	The blood urea nitrogen in acute intestinal obstruction [H. W. Louria]	721
INFLUENZA-PNEUMONIA		The toxic agents developed in the course of acute intestinal obstruction, and their action [H. B. Stone] ..	625
Blood chemistry studies in influenzal pneumonia [C. W. Wells]	332	INTESTINAL STASIS	
The use of the serum of convalescents in the treatment of influenza-pneumonia; a summary of the results in a series of 101 cases [G. P. Sanborn]	125	Intestinal stasis [G. F. Kohler and D. Palmer]	831
		INTESTINE	
		Collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (Gastro-intestinal tract) [I. S. Hirsch.] ..	179
		Intestinal parasites as a cause of appendicitis [W. W. Cress]	401
		The diagnosis of syphilitic tumors in the stomach and intestine [L. Bard]	34
		First infection with tuberculosis by way of the intestinal tract [E. L. Opie] ...	302
		INTRACRANIAL INFECTIONS	
		Results of intracranial infections in trigeminal neuralgia [F. Hartel]	282
		INTRACUTANEOUS REACTION	
		Intracutaneous reaction for early diagnosis in pertussis [E. Modigliani and S. De Villa]	832
		INTRAPALPERAL MAILLEIN TEST	
		The value of the intrapalpe-	

INDEX OF SUBJECTS

lxv

	PAGE
bral Mallein test in the diagnosis of glanders [E. H. Mason and R. V. B. Emmons]	250
INTRASPINAL TREATMENT	
Intraspinal treatment of neurosyphilis [Sicard et Paraf]	564
INTROSPECTIVE PSYCHOLOGY	
The anatomical implications of the introspective psychology (H. I. Gosline)	275
INTRASPINAL TREATMENT	
Our personal results in intraspinal treatment of neurosyphilis [B. Rodriguez]....	371
The intraspinal treatment of neurosyphilis [C. R. Humbert]	469
INTRATHORACIC NEOPLASMS	
Discernment of intrathoracic neoplasms and aid of diagnostic pneumothorax [M. Fishberg]	780
INTRAVENOUS THERAPY	
Intravenous therapy and the effect of hypertonic solutions administered intravenously [K. Stejskal]	880
INTUSSUSCEPTION	
Measles, intussusception and appendicectomy in a baby seven months old [B. W. Gowing]	1133
On chronic intussusception in children [G. F. Still]	1132
INVOLUTION	
Psychosis during involution [P. H. Roxo]	375
IRRADIATION	
Lasting results from irradiation of the uterus collum carcinoma with radio-active substances [B. Schweitzer]	845
JACKSONIAN EPILEPSY	
Treatment of Jacksonian epilepsy due to old injuries of the skull [Leriche]	190
JAMES' THEORY	
James' theory of the emotions in relation to the adrenal glands [C. E. Kieley]	856
JAUNDICE	
Acholic jaundice [J. M. Campbell]	1101
Syphilitic jaundice in early infancy [C. Blechman] ...	443
The biliary obstruction required to produce jaundice [P. D. McMaster, and P. Rouse]	940

	PAGE
JOINTS	
A few notes on the diagnosis and differential diagnosis of tuberculosis in bones and joints [G. Forsell]	650
Collected abstract of the literature on roentgenology for the year 1919. Bones and joints [I. S. Hirsch]....	356
Stigmata of predisposition to bone and joint tubercule [W. C. Rivers]	160
JUVENILE TABES	
Juvenile tabes [H. L. Parker]	284
Juvenile tabes [C. Rosenheck]	399
KALA-AZAR	
Kala-azar in Madrid [J. Garcia Del Diestro and N. G. Barrio]	348
KELOIDS	
Digestion of keloids, cicatrices and buboes with pepsin-hydrochloric acid [E. Ahlsvede]	1076
KERATITIS	
Radiotherapy in interstitial keratitis [Japiot and Bussey]	1137
KIDNEY	
A preliminary paper on the relation between the amount of stainable lipid material in the renal epithelium and the susceptibility of the kidney to the toxic effect of the general anesthetics [W. De B. MacNider]....	825
Effect of therapeutic doses of mercury on the kidneys and the duration of its excretion [L. G. Beinhauer]	310
Hydronephroma of kidney; secondary growth of ureter [J. W. T. Walker]	915
Newer laboratory methods in diagnosis and prognosis of diseased kidneys [A. I. Rubenstone]	929
On the causation of cardiac hypertrophy and high blood-pressure in renal disease [G. Jawein].....	397
Renal activity and the acid-base equilibrium [T. Nagayama]	337
Renal irritation in man from high protein feeding [T. L. Squier, and L. H. Newburgh]	945
Serological relationships of	

	PAGE
liver and kidney [M. S. Fleisher, T. G. Hall and N. Arnstein]	250
Some observations on the use of arspenamin; its effect on the kidneys and its therapeutic results [H. B. Anderson]	1006
The secretory pressure of the kidney as an index of pathologic conditions [G. Walker]	916
KIDNEY PELVIS	
Papillary epithelioma of the kidney pelvis [E. M. Miller and R. H. Herbst]	700
KOLA ADDICTION	
Kola addiction [Starobinsky]	874
LABOR	
Syphilis in pregnancy and labor [E. L. Cornell and A. W. Stillians]	421
The administration of pituitrin at the beginning of the third stage of labor [G. H. Ryder]	895
LABYRINTH	
Labyrinth and equilibrium. I. A comparison of the effect of the removal of the otolith organs and of the semi-circular canals [S. S. Maxwell]	333
LACTOSE	
Lactose—determination of in milk by colorimetric method [R. G. Owen and R. Gregg]	719
LARYNGEAL NERVE	
Paralysis of the left recurrent laryngeal nerve associated with mitral stenosis [J. Garland, and P. D. White]	9
LARYNGEAL SPASM	
Pathogenesis of laryngeal spasm in the breast-fed infant [A. M. Calderin]	254
LARYNGOCELE	
The report of a case of laryngocele [S. Iglauer]	589
LEAD	
The pharmacologic action of lead in organic combination [E. C. Mason]	1089
LEAD POISONING	
Industrial lead poisoning [M. D. Shie]	526
LEG	
Two cases of anomalies of growth: Unilateral macro-	

	PAGE
somia and congenital overgrowth of the right leg [J. Black-Milne]	72
Tuberculosis of the lymphatic vessels of the leg and the second metacarpal bone. Secondary elephantiasis [W. Martin]	875
LEPROSY	
Preliminary note on the treatment of nodular leprosy by intravenous injections of chaulmoogra oil [P. Harper]	685
LEPTOSPIRA ICTEROIDES	
Etiology of yellow fever. Serum treatment of animals infected with leptospira icteroides [H. Noguchi]	143
LEPTOSPIRA ICTEROHÆMORRHAGIE	
Etiology of yellow fever. XIII. Behavior of the heart in the experimental infection of guinea pigs and monkeys with leptospira icteroids and leptospira icterohæmorrhagiæ [A. E. Cohn, and H. Noguchi] ...	939
Immunology of the Peruvian strains of leptospira icteroides [H. Noguchi and I. J. Kligler]	627
Etiology of yellow fever. XIII. Behavior of the heart in the experimental infection of guinea pigs and monkeys with leptospira icteroids and leptospira icterohæmorrhagiæ [A. E. Cohn, and H. Noguchi] ...	939
LESIONS	
Some of the clinical symptoms of appendicitis compared with the lesions found at operation [C. B. Maunsell]	26
LESSER CURVATURE	
A case of large penetrating ulcer of the lesser curvature [F. Hernaman-Johnson]	1032
LETHARGIC ENCEPHALITIS	
A case of Parkinson's disease following lethargic encephalitis [M. Souques]	96
Ambulatory form of lethargic encephalitis [L. Raymond]	190
Contagiousness of lethargic encephalitis [A. Netter]...	379

	PAGE
Hyperglycorachia in epidemic encephalitis [C. Dopter]...	380
LEUKANEMIA	
Leukanemia [D. Symmers]..	810
LEUKEMIA	
A new strain of transmissible leukemia in fowls (Strain H) [V. Ellermann]	823
A warning of overdose of x-ray in cases of myelonic leukemia [W. Parrisius] ..	653
Leukemia: type diagnosis by oxydase method of blood staining [G. L. Lambricht]	601
LEUKOCYTES	
Changes in leukocytes and alkali reserve of blood in experimental infections [E. F. Hirsch]	935
Changes in the alkali reserve, sugar concentration, and leukocytes of the blood in experimental infections [E. F. Hirsch]	1005
The effect of benzyl benzoate on the leukocytes of the rabbit [L. A. Emge, and J. P. Jensen]	944
The leukocytes after hemorrhages [J. H. Musser]	1001
The occurrence of abnormal leukocytes in the blood in acute infections; acute benign lymphoblastosis [W. A. Bloedorn and J. E. Houghton]	537
LEUKOCYTIC RESPONSE	
General leukocytic response of the guinea pig during the reaction of artificial immunity in experimental tuberculous infection [R. G. Hussey]	815
LEWIS-BENEDICT TEST	
Studies of blood sugar; effect of blood constituents on picrate solutions. A consideration of the limitations of the modified Lewis-Benedict test. [D. M. Cowie and J. P. Parsons].....	437
LIFE INSURANCE	
The relationship of the anemias to life insurance [H. Z. Griffin].....	391
LIPOID MATERIAL	
A preliminary paper on the relation between the amount of stainable lipoid material in the renal epithelium and the suscepti-	

	PAGE
bility of the kidney to the toxic effect of the general anesthetics [W. De B. MacNider]	825
LIPOMA	
A case of massive lipoma of the mediastinum [R. S. Leopold]	32
LIVER	
Acute yellow atrophy of the liver [F. Umber]	23
Collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (Gastro-intestinal tract) [I. S. Hirsch].	169
Serological relationships of liver and kidney [M. S. Fleisher, T. G. Hall, and N. Arnstein]	250
Studies on the action of various salts on the liver after their introduction into the duodenum [M. Einhorn] ..	1017
Subacute liver atrophy (with ascites [H. Strauss]	226
Sulphur in the cancerous liver [A. Robin and A. Bournigault]	388
Syphilis as an etiologic factor in nodular cirrhosis of the liver [L. J. Owen]	584
The liver as a blood concentrating organ [P. D. Lamson and J. Roca]	978
The part played by the liver in the regulation of blood volume and red corpuscle concentration in acute physiological conditions [P. D. Lamson]	431
LOBAR PNEUMONIA	
Results of antimortem lung punctures in lobar pneumonia; their bearing on the mechanism of crisis [H. M. Thomas, Jr., and F. Parker, Jr]	126
Serum treatment of lobar pneumonia [W.W. Herrick]	775
The serum treatment of lobar pneumonia [W. L. Niles]..	776
LOGORRHEA	
Complete transitory motor aphasia following follicular tonsillitis, followed by logorrhea [G. Funaioli].....	186
LUMBAGO	
Clinical and pathogenic studies on lumbago [R. Brun]	279

	PAGE
LUMBAR SPINE	
The variations in the anatomic structure of the lumbar spine [J. E. Goldwait].....	312
LUMINAL	
Luminal in epilepsy [F. Bruhl]	479
LUNG	
Adrenalin hypersensitiveness in definite and unproved pulmonary tuberculosis [F. H. Heise and L. Brown] ...	199
A comparative study of the pathology and x-ray densities of tuberculous lung lesions [H. E. Dunham and J. H. Skavlon]	841
Chronic lung disease following the influenza pandemic of 1918-1919 [M. J. Radin] ..	421
First infection with tuberculosis by way of the lungs [E. L. Opie and H. Anderson]	303
Pulmonary findings due to circulatory changes [J. S. Pritchard and M. A. Mortensen]	305
The bacteriology of chronic nontuberculous lung disease [H. Greenley and M. Brereton]	1106
The inhalation treatment in pulmonary tuberculosis [B. Robinson]	198
LUNG PUNCTURES	
Results of antimortem lung punctures in lobar pneumonia; their bearing on the mechanism of crisis [H. M. Thomas, Jr., and F. Parker, Jr.]	126
LUNG RADIOGRAMS	
Nature of the lung radiograms [H. Schafer]	561
LUPUS VULGARIS	
Radium therapy in lupus vulgaris [J. Kopp]	753
LUTEUM	
Luteum extract, a further report [A. P. Leighton] ..	998
LYMPH	
The alkali reserve of the blood-plasma, spinal fluid and lymph [J. B. Collip and P. L. Backus].....	388
LYMPH-NODES	
Migration of lymphocytes in plasma cultures of human lymph-nodes [W. H. Lewis and L. T. Webster]	624

	PAGE
LYMPHATICS	
The injection of the Purkinje fibers and the lymphatics of the endocardium [J. Trias]	430
LYMPHATIC VESSELS	
Tuberculosis of the lymphatic vessels of the leg and the second metacarpal bone. Secondary elephantiasis [W. Martin]	875
LYMPHOBLASTOSIS	
The occurrence of abnormal leukocytes in the blood in acute infections; acute benign lymphoblastosis [W. A. Bloedorn and J. E. Houghton]	537
LYMPHOCYTE	
Fate of the lymphocyte [C. H. Bunting and J. Huston]..	1009
The lymphocyte in natural and induced resistance to transplanted cancer. VI. Histological comparison of the lymphoid tissue of naturally immune and susceptible mice. [W. Nakahara and J. B. Murphy] ..	621
Migration of lymphocytes in plasma cultures of human lymph-nodes [W. H. Lewis and L. T. Webster]	624
LYMPHOID ACTIVITY	
2. Effect of induced cellular reaction on the fate of cancer grafts. IV. Studies on lymphoid activity. [J. Murphy, R. G. Hussey, E. Sturm and W. Nakahara]..	815
Studies on lymphoid activity. V. Relation between the time and extent of lymphoid stimulation induced by physical agents and the degree of resistance to cancer in mice [J. B. Murphy, W. Nakahara, E. Sturm]..	819
LYMPHOID TISSUES	
Latent infections with the demonstration of spirochete pallida in lymphoid tissues of the rabbit [W. H. Brown and L. Pearce]	818
LYMPHOSARCOMA	
Primary lymphosarcoma of the stomach. A report of twelve cases [A. C. Broders and A. F. Mahle]	606
Primary lymphosarcoma of the tonsil [F. Fedele]	530

PAGE	PAGE
MACROSOMIA	tem of psychoses [W. Bey-erman] 852
Two cases of anomalies of growth: Unilateral macrosomia and congenital overgrowth of the right leg [J. Black-Milne] 72	MARROW
MAGNESIUM SULPHATE	Histological changes in the bone marrow of rats exposed to the radiation from radium [J. C. Mottram].. 467
Magnesium sulphate in arsenic poisoning [O. S. Hansen] 725	MASSAGE
MALARIA	Treatment of salivary fistulæ by massage and hot air [P. Kouindjy] 609
A case of congenital malaria [A. Cuadra] 255	MEASLES
Malaria in England [G. A. Gill] 496	Experimental measles. Read at the seventy-second annual session of the American Medical Association, held in Boston [F. G. Blake] 827
Meningeal reaction in malaria [A. Porot] 187	Measles and diphtheria [M. Ponce de Leon] 345
Studies on malignant malaria in Macedonia [J. F. Gaskell and W. L. Millar] 27	Measles, intussusception and appendicectomy in a baby seven months old [B. W. Gwring] 1133
Studies on the various types of malarial infection and the effect of quinin treatment among the native population of the Malay Archipelago [N. H. Swellengrebel, and J. M. H. De Graaf Swellengrebel] 50	Measles and whooping-cough [C. Pelfort] 345
The Wassermann test in patients affected with malaria in the tropics [F. H. Hehe-werth and W. A. Kop].... 534	Studies on measles. I. Susceptibility of monkeys to the virus of measles [F. G. Blake and J. D. Trask, Jr.] 620
MALIGNANCY	MEDIASTINUM
Roentgen therapy in superficial malignancy [W. H. Meyer] 655	A case of massive lipoma of the mediastinum [R. S. Leopold] 32
MALNUTRITION	MELANOMATA
Malnutrition [T. Clark] 509	Malignant melanomata: Especially those occurring on the heel and sole of the foot [W. H. D. Stevenson]. 787
The states of malnutrition in early infancy—hypothrepsia and athrepsia [A. B. Marfan] 1126	MELANOSARCOMA CONJUNCTIVÆ BULBI
MANGANESE DIOXID	Case of melanosarcoma conjunctivæ bulbi [L. K. Wolf and H. T. Deelman] 1036
Quantitative distribution of particulate material (manganese dioxid) administered intravenously to the cat [C. K. Drinker, and L. A. Shaw] 938	MENINGEAL REACTION
Quantitative distribution of particulate material (manganese dioxid) administered intravenously to the dog, rabbit, guinea pig, rat, chicken and turtle [C. C. Lund, L. A. Shaw, and C. K. Drinker] 937	Meningeal reaction in malaria [A. Porot] 187
MANIC-DEPRESSIVE PSYCHOSIS	MENINGITIS
The position of manic-depressive psychosis in the sys-	Acute meningitis and tuberculous meningitis [L. Morquies] 1045
	Anthrax from the shaving brush and primary anthrax meningitis [H. M. Carey].. 110
	Case of chronic meningitis of the vomiting type [H. Le Maire and Staissnie] 550
	Cured cerebrospinal meningitis in a girl of eight months [J. Comby and J. Pallegoix] 452
	Epidemiological role of the

	PAGE
case of cerebrospinal meningitis [R. R. Simmons] ..	1047
The curability of tuberculous meningitis [F. Harbitz]...	852
The symptoms and course of tuberculous meningitis in adult consumptives [C. Holten]	1043
The ventricle form of meningococcus meningitis [P. Woringer]	549
MENINGOCOCCI	
VI. Study of the classification of meningococci [A. B. Wadsworth, R. Gilbert and A. Hutton]	938
MENINGOCOCCUS MENINGITIS	
The ventricle form of meningococcus meningitis [P. Woringer]	549
MENINGO-ENCEPHALITIS	
A report of an epidemic with certain cases presenting the picture of meningo-encephalitis [C. E. Nixon, and T. H. Sweetser]	1054
Hemorrhagic meningoencephalitis in anthrax [S. J. House]	377
MENSTRUATION	
The role of the endocrine glands in certain menstrual disorders [E. Novak]	327
MENTAL DERANGEMENT	
Transient mental derangement in child [M. Helmann]	1151
MERCURIAL INTOXICATION	
Gangrenous ulcer in vaginitis from mercurial intoxication [H. M. Jæger].....	524
MERCUROCHROME	
Diphtheria carriers and their treatment with mercurochrome [G. A. Gray and B. I. Meyer]	772
MERCURY	
Effect of therapeutic doses of mercury on the kidneys and the duration of its excretion [L. G. Beinbauer]	310
Further progress in the study of the relative efficiency of the different mercurial preparations [W. R. Ramsey and O. A. Groebner]...	351
Mercury compounds in the chemotherapy of experimental tuberculosis in guinea pigs [L. M. DeWitt]..	543
Paresis treatment by arsphen-	

	PAGE
amin and mercury [C. A. Bonner]	1041
MESENTERIC ARTERIES	
Abdominal arteriosclerosis and the obliteration of the mesenteric arteries [F. F. Martinez]	987
METABOLIC STUDIES	
Adult tetany and methylguanidin. A metabolic study [L. Findlay and J. S. Sharpe]	148
Bence-Jones proteinuria: a report of three cases with metabolic studies [W. Walters]	399
Studies in metabolic changes in experimental tetany [T. Togawa]	147
The basal metabolic rate in exophthalmic goiter with a brief description of the technic used at the Mayo clinic [I. Sandiford]	146
METABOLISM	
Experimental studies in diabetes. Series II. The internal pancreatic function in relation to body mass and metabolism. The effects of exercise [F. M. Allen and M. B. Wishart].	816
METACARPAL BONE	
Tuberculosis of the lymphatic vessels of the leg and the second metacarpal bone. Secondary elephantiasis [W. Martin]	875
METAMERIC VERRUCCOSIS	
Metameric verrucosis [V. Juaristi]	957
METASTASES	
Focal infections and their clinical relations to metastases in the female genitalia [A. B. Keyes]	517
METHYLGUANIDIN	
Adult tetany and methylguanidin. A metabolic study [L. Findlay and J. S. Sharpe]	148
MICRO-CAPILLARY TONOMETER	
Determination of the capillary blood-pressure in man with the micro-capillary tonometer [C. S. Danzer and D. R. Hooker]	154
MICROBAL STUDIES	
Microbal studies on acute respiratory infection with especial consideration of	

INDEX OF SUBJECTS

lxxi

	PAGE
immunological types [W. H. Park, A. W. Williams and C. Krumwiede]	533
MICROFIBRILLATION	
Study of microfibrillation of the myocardium [P. Del-eva]	433
MIGRAINE	
Migraine in infants [J. Comby]	839
Pathological physiology and treatment of migraine [G. Didsbury]	281
Some treatments for migraine [Pagniez]	983
MILK	
Case of hypersensitiveness to cow's milk [E. A. Park]..	444
Lactose—determination of in milk by colorimetric method [R. G. Owen and R. Gregg] ..	719
Milk as transmitters of tuberculosis [M. Curoino]	720
Powdered litmus milk. A product of constant quality and color which can be made in any laboratory [H. W. Hamilton]	627
The CO ₂ content as a basis for distinguishing heated from unheated milk [V. L. Van Slyke and R. F. Kee-ler]	246
MILK POWDERS	
Antiscorbutic potency of milk powders [E. B. Hart, H. Steenbock and R. Ellis] ...	646
MILK RETENTION	
Milk retention [C. Porcher].	441
MIGRAINE-EPILEPSY SYNDROME	
The familial distribution of the migraine-epilepsy syn-drome [J. A. Buchanan]....	287
MITRAL INSUFFICIENCY	
Mitral insufficiency in poly-arthritis and syphilis. In-fluence of antisiphilitic therapy on heart disease [E. Attinger]	563
MONGOLIAN IDIOCY	
The Mongolian idiot [W. Timme]	659
MORAL INSANITY	
Clinical and genealogic stud-ies on moral insanity [F. Meggendorfer]	925
MORPHIN	
Comparative effects of mor-phine and alkaloids of the benzylisoquinolin group on the circulation [P. J. Hanz-lik]	943

	PAGE
Narcotic drug addiction. I. The formation of protective substances against morphine [E. J. Pellini and A. D. Greenfield]	437
The influence of morphine in experimental septicemia [A. Kraft and N. M. Leitch] ..	963
MORPHINISM	
Is there an ideal treatment of morphinism? [C. R. Pearson]	184
MOSS'S GROUPING	
Report on 5000 bloods typed using Moss's grouping [W. L. Culpepper and M. Able-son]	722
MOTOR DISTURBANCES	
The diagnosis of some of the more common motor dis-turbances met with in children [J. L. Joughlin]..	952
MOUTH	
The mouth from a gastroen-terological viewpoint [L. H. Levy]	607
MOUTH DISEASE	
Foot and mouth disease in hu-man beings [E. Veiel]....	392
MUCOUS MEMBRANES	
Telangiectases of the face and mucous membranes of the nose and throat associated with severe epistaxis [W. Freudenthal]	677
MULTIPLE ANTIGENS	
Polyvalent antibody response to multiple antigens [F. M. Huntoon and S. H. Craig] ..	820
MULTIPLE SEROSITIS	
Multiple serositis [W. D. Reid]	121
MUMPS	
The duct sign in mumps [D. M. Cowie]	161
MUNICIPAL HEALTH ORGANIZATION	
Standardization of municipal health organization [A. J. McLaughlin]	314
MURMUR	
The effort syndrome together with a consideration of the significance of certain mur-murs [A. E. Cohn]	702
The first heart sound and the presystolic murmur [W. D. Reid]	500
MUSCLE	
Consumption of oxygen by the muscles, in diminished oxy-gen supply [F. Verzar]....	539

	PAGE
Creatin and muscle in man [F. S. Hammett]	538
The four phases of heat-pro- duction of muscle [A. V. Hill]	335
MUSCULAR ATROPHY	
Neural progressive muscular atrophy [H. Goedde]	767
MUSCULAR RHEUMATISM	
Eosinophilia in muscular rheumatism [I. Synwoldt].	215
MUSHROOM POISONING	
The diagnosis and prognosis of mushroom poisoning [Editorial]	795
MYELONIC LEUKEMIA	
A warning of overdose of x- ray in cases of myelonic leukemia [W. Parrisius] ..	653
MYIASIS	
A case of urethral myiasis [N. Leon]	963
MYOCARDIAL LESIONS	
Myocardial lesions in school children [H. W. Dana] ..	1024
MYOCARDIUM	
Study of microfibrillation of the myocardium [P. Del- eva]	433
MYOSITIS	
Focal infection and elective localization in the etiology of myositis [E. C. Rosenow, and W. Ashby]	1093
MYOTONIA	
Congenital myotonia (Oppen- heim) and Werding-Hoff- man's disease are the same condition [Leenhardt and Sents]	548
NARCOTIC	
Narcotic drug addiction. I. The formation of protective substances against morphin. [E. J. Pellini and A. D. Greenfield]	437
NASAL CAVITIES	
Reactions of the nasal cavity and postnasal space to chilling of the body surface. I. Vasomotor reactions [S. Mudd, A. Goldman, and S. B. Grant]	1011
The nasal cavities and asth- ma [G. E. Shambaugh]...	774
NASOPHARYNGEAL SECRETIONS	
Experimental studies on the nasopharyngeal secretions from influenza patients. II. Filterability and resistance	

	PAGE
to glycerol [P. K. Olitsky and F. L. Gates]	615
Experimental studies of the nasopharyngeal secretions from influenza patients. III. Studies of the concurrent infections [P. K. Olitsky, and F. L. Gates]	949
Experimental studies of the nasopharyngeal secretions from influenza patients. IV. Anaerobic cultivation [P. Olitsky, and F.L. Gates]	948
NASOPHARYNGEAL WASHINGS	
Cultivation of a filterable organism from the naso- pharyngeal washings in in- fluenza [L. Loewe and F. D. Zeman]	614
I. Transmission experiments with nasopharyngeal wash- ings [P. K. Olitsky and F. L. Gates]	947
NASOPHARYNX	
Effect of small doses of x- rays on hypertrophied tons- ils and other lymphoid structures of the naso- pharynx [J. B. Murphy, R. D. Hussey, W. D. Wither- bee, S. L. Craig, and E. Sturm]	1039
IV. The incidence of pneu- mococci, hemolytic strep- tococci and influenza bacilli (Pfeiffer) in the naso- pharynx of tonsillectomized and nontonsillectomized children [J. Meyer, I. Pilot, and S. J. Pearlman]	1026
NEISSER-WECHSBERG PHENOMENON	
On the so-called Neisser- Wechsberg inhibiting phe- nomenon in bactericidal im- mune sera [T. Thjotta]...	61
NEOARSPHENAMIN	
A comparative study of the trypanocidal activity of arsphenamin and neo-ars- phenamin [J. F. Schma- berg, J. A. Kolmer, and G. W. Raiziss]	237
Arsphenamin and neoars- phenamin [W. A. Smith]..	37
1. Superinfection in experi- mental syphilis following the administration of sub- curative doses of arsphen- amin or neoarsphenamin [W. H. Brown and L. Pearce]	1008
The relative therapeutic	

	PAGE		PAGE
value of arsphenamin and neo-arsphenamin of different manufacturers [C. Voegtlin and H. W. Smith]	427	tions in trigeminal neuralgia [F. Hartel].....	282
NEOPLASMS		The behavior of blood sugar in cases of diabetic neuritis and neuralgia [K. Grube]	95
Discernment of intrathoracic neoplasms and aid of diagnostic pneumothorax [M. Fishberg]	780	Treatment of sciatic neuralgia with epidural injections [P. H. Feuilleade]	506
NEPHELOMETRIC VALUES		NEURASTHENIA	
A story of the nephelometric values of cholesterol and the higher fatty acids [F. A. Csonka]	246	Abdominal neurasthenia [A. S. Taylor]	374
NEPHRECTOMY		Sexual neurasthenia [H. Bruni]	572
The indication for nephrectomy in renal stone [N. J. MacLean]	916	NEURITIS	
NEPHRITIS		The behavior of blood sugar in cases of diabetic neuritis and neuralgia [K. Grube]	95
A nephritic diet sheet [E. F. Walsh]	220	NEUROLOGY	
A study of the Wassermann test. Reaction in a large group of supposedly non-syphilitic individuals, including large groups of diabetics and nephritics [J. R. Williams]	812	Some problems in neurology. The Argyll Robertson pupil [S. A. Wilson]	853
Clinical and anatomic relations in chronic nephritis [E. Moschcowitz]	15	NEUROMUSCULAR MECHANISM	
Clinical evidences of acidemia in chronic nephritis [B. S. Cornell]	503	A study of the action of cocaine on the splanchnic and cervical sympathetic neuromuscular mechanisms [A. L. Tatum]	239
Etiology and diagnosis of nephritis [J. B. McElroy]....	511	NEUROPATHOLOGY	
Studies on acute nephritis [G. Petren]	15	Cardiorespiratory correlations in neuropathology [J. Parhon]	378
The phenolsulphonephthalein test and the non-protein nitrogen of the blood in chronic nephritis [R. Fitz]	157	NEUROSIS	
The prognosis of nephritis in childhood [R. F. James]...	836	The soldier's heart and war neurosis. A study in symptomatology [Sir J. MacKenzie]	183
NERVES		Intraspinal treatment of neurosyphilis [Sicard et Paraf]	564
Observations on the effects of radium treatment on war injuries in the neighborhood of nerves and blood-vessels [W. C. Stevenson].	557	NEUROSYPHILIS	
NERVOUS SYSTEM		Feeble-mindedness in hereditary neurosyphilis [O. J. Raeder]	955
Tuberculosis of the central nervous system [W. Kirschbaum]	857	Our personal results in intraspinal treatment of neurosyphilis [B. Rodriguez]....	371
NEURAL ATROPHY		Relative effectiveness of various forms of treatment in neurosyphilis. Observations of the comparative value of routine intravenous treatment, spinal drainage and arsphenamized serum intraspinally [J. H. Stokes and E. D. Osborne]	766
Neural progressive muscular atrophy [H. Goedde]	767	The importance of recognizing and treating neurosyphilis in the early period of the infection [J. A. Fordyce]	585
NEURALGIA		The intraspinal treatment	
Neuralgias of the head [M. W. Janowski].....	474		
Results of intracranial infec-			

	PAGE
of neurosyphilis [C. R. Humbert]	469
NEUROTIC SUFFUSION	
Neurotic suffusion of the skin [R. Frenzel]	89
NITRIC ACID POISONING	
A death due to nitric acid poisoning [G. A. Gray]	321
NOMOTOPIC TACHYCARDIA	
Paroxysmal tachycardia, with reference to nomotopic tachycardia and the role of the extrinsic cardiac nerves [A. M. Wedd]	707
NON-DYSENTERIC COLITIS	
Severe non-dysenteric colitis and recto-colitis [R. Bensaude and Antoine, E.]	393
NONPROTEIN	
Chemical changes in the blood, in disease. I. Non-protein and urea nitrogen [V. C. Myers]	52
The phenolsulphonaphthalein test and the non-protein nitrogen of the blood in chronic nephritis [R. Titz] ..	157
Nose	
Telangiectases of the face and mucous membranes of the nose and throat associated with severe epistaxis [W. Freudenthal]	677
The etiology of acute inflammations of the nose, pharynx, and tonsils [S. Mudd, S. B. Grant and A. Goldman]	598
The etiology of acute inflammations of the nose, pharynx and tonsils [S. Mudd, S. B. Grant, and A. Goldman]	678
N-PHENYLGLYCINAMID-P-ARSONIC ACID	
Chemotherapy of trypanosome and spirochete infections. Biological series. II. The therapeutic action of n-phenylglycinamid-p-arsonic acid in experimental trypanosomiasis of mice, rats and guinea pigs. III. The therapeutic action of n-phenylglycinamid - p - arsonic acid in experimental trypanosomiasis of rabbits [L. Pearce, and H. Brown] ..	63
Chemotherapy of trypanosome and spirochete infections. Biological series. IV. The action of N-phen-	

	PAGE
ylglycinamid-p-arsonic acid upon spirochete infections [W. H. Brown and L. Pearce]	156
NURSINGS	
Contribution to the study of anemia with splenomegaly in nurslings (2 papers) [G. L. Hallez]	444
NUTRITION	
Nutrition and public health with special reference to vitamins [J. F. McClendon].	411
NUTRITIONAL DISORDERS	
Certain nutritional disorders of children associated with a putrefactive intestinal flora [L. Porter, G. B. Morris, and K. F. Meyer]	166
The nature of the reducing substance in the urine of infants with nutritional disorders [O. M. Schloss] ..	956
OATS	
Nutritive values of the proteins of the barley, oat, rye, and wheat kernels [T. B. Osborne and L. B. Mendel] ..	249
OBESITY	
Clinical history of a case of fatal obesity [G. Maranon et E. Bonilla]	493
OBSTETRICS	
After care of obstetrical cases—immediate or remote [W. Brehn]	900
Modern care of the obstetrical patient [H. H. Cummings]	900
OCULAR REACTION	
Ocular reaction in anaphylaxis [R. Kodama]	343
OCULO-CARDIAC REFLEX	
The oculo-cardiac reflex in syphilis [G. Thibierge and Boutelier]	101
ONYALAI	
Observations in a case of onyalai in the East African Protectorate [T. B. Welch] ..	102
OPPENHEIM'S DISEASE	
Congenital myotonia (Oppenheim) and Werding-Hoffman's disease are the same condition [Leenhardt and Sentis]	548
ORAL CAVITY	
Affection of the oral cavity with fusiform and spir-	

	PAGE
allæ of Vincent [F. De Angelis]	835
OSTEOARTHROPATHY	
Hypertrophic osteoarthropathy in pulmonary tuberculosis [H. J. Corper, P. Cosman, W. M. Gilmore, and L. T. Black]	966
OSTEOMYELITIS	
X-ray diagnosis of osteomyelitis [N. J. Nessa]	1031
OSTEOSYNTHESIS	
Osteosynthesis in the treatment of Pott's disease [A. L. Duran]	957
OTITIS	
Ligation of the jugular in pyemic otitis (G. Gradenigo)	507
OTITIS MEDIA	
Acute purulent otitis media in children [F. G. Allison]	833
Diseases of the ear (otitis media) [P. D. Kerrison] ..	800
OTOLITH ORGANS	
Labyrinth and equilibrium. I. A comparison of the effect of removal of the otolith organs and of the semi-circular canals [S. S. Maxwell]	333
OVARIAN PREGNANCY	
Ovarian pregnancy with report of a case [J. A. Chalfant]	910
Primary ovarian and primary abdominal pregnancy [H. M. Ray]	910
OVERGROWTH	
Two cases of anomalies of growth: Unilateral macrosomia and congenital overgrowth of the right leg [J. Black-Milne]	72
OVERMEDICATION	
Overmedication in infancy and childhood [J. D. Love]	257
OXYDASE METHOD	
Leukemia: type diagnosis by oxydase method of blood staining [G. L. Lambright]	601
OXYGEN	
Consumption of oxygen by the muscles, in diminished oxygen supply [F. Verzar]....	539
The therapeutic use of oxygen [R. D. Rudolf]	328
OXYGEN TENSION	
Studies on the response of the circulation to low oxygen tension. III. Changes in the pacemaker and in con-	

	PAGE
duction during extreme oxygen want as shown in the human electrocardiogram ([C. W. Greene and N. C. Gilbert]	823
PAGET'S DISEASE	
Paget's disease of the breast J. E. Else)	483
Paget's disease of the bone [J. C. DaCosta]	881
PAISY	
A new complimentary sign in facial palsy [T. Santa Cecilia]	281
PANCREAS	
Acute infections of the pancreas (F. B. Sweet)	520
Carcinoma of the pancreas [K. Speed]	307
The diagnosis of disease of the pancreas [Sir A. E. Garrod]	103
The influence of thyroid feeding upon the physiological action of the pancreas [H. Hoshimoto]	335
PANCREATIC EXTRACT	
The absence of pancreatic secretions in sprue and the employment of pancreatic extract in the treatment of this disease [T. R. Brown]	968
PANCREATIC FUNCTION	
Experimental studies in diabetes. Series II. The internal pancreatic function in relation to body mass and metabolism. The effects of exercise [F. M. Allen and M. B. Wishart].	816
PAPAVERIN	
Papaverin in x-ray diagnosis of gastric disease. Report of 250 cases [S. Szerb and V. Revesz]	559
PAPILLARY EPITHELIOMA	
Papillary epithelioma of the kidney pelvis [E. M. Miller and R. H. Herbst]	700
PARALYSIS	
Contribution to the study of the mode of onset of general paralysis [M. C. Mirallie]	480
General paralysis and its causes [A. Marie and C. Levaditti]	575
The therapy of paralysis [R. Weichbrodt]	479
PARASITIC WORMS	
Hemolysins from parasitic worms [B. Schwartz]	436

	PAGE		PAGE
PARATYPHOID BACILLI		in the lateral position [T. Howard]	676
A group of paratyphoid bacilli from animals, closely resembling those found in man [C. Tenbroeck]	339	PERICARDIAL EFFUSION	
PARATYPHOID FEVER		Roentgenologic demonstration of the heart in pericardial effusion [H. Kloiber and H. Hochschild]	560
Pulmonary complication of paratyphoid fever, with a report of four cases [T. Klein, and R. G. Torrey]..	31	PERICOLITIS	
The diagnosis of typhoid and paratyphoid infections [H. J. Goeckel]	611	Volvulus of cecum from membranous pericolicitis [C. Silvan]	999
PARATHYROID GLANDS		PERITONITIS	
The parathyroid glands. A review of the literature [W. M. Boothby]	1149	A new method of diagnosis of peritonitis in infancy and childhood [B. Denzer]	349
PARESIS		A diet for pernicious anemia [R. L. Fenlon]	771
Paresis treatment by arsphenamin and mercury [C. A. Bonner]	1041	Peritonitis: Ether therapy and prophylaxis [Benthin]	883
PAROTITIS		The treatment of diffuse suppurative peritonitis [J. S. MacEachern]	884
Pathogenesis of ulcerative parotitis in the new born [W. Plewka]	952	PERNICIOUS ANEMIA	
PAROXYSMAL TACHYCARDIA		A study of the bile pigments in pernicious anemia [J. P. Schneider]	7
Paroxysmal tachycardia, with reference to nomotopic tachycardia and the role of the extrinsic cardiac nerves [A. M. Wedd]	707	Blood changes in a gastrectomized patient simulating those in pernicious anemia [H. R. Hartman]	1003
PEANUT OIL		Blood chemistry in pernicious anemia [A. O. Gettler]	232
Some observations upon the behavior of a fixed oil (peanut oil) injected intraperitoneally [E. W. Schwartzel]	728	Chronic hemolytic anemia. "The pernicious anemia of pregnancy" [G. R. Minot]	923
PEDIATRICS		Pernicious anemia and azotemic nephritis [C. Aubertin and J. Yacoel]	110
The new era in pediatrics [J. R. Gerstley]	741	Pernicious anemia [A. J. Ochsner]	922
PELLAGRA		Pernicious anemia. A clinical study of one hundred and fifty consecutive cases with special reference to gastric anacidity [S. A. Levine and W. S. Ladd] ..	984
Metabolism in pellagra: A study of the urine [M. X. Sullivan, R. E. Stanton, and P. R. Dawson]	727	Transfusion of blood in pernicious anemia [J. M. Graham]	8
Pellagra [W. J. MacNeal] ..	972	PERSONALITY	
The relation of diet to pellagra incidence [J. Goldberger, G. A. Wheeler, and E. Sydenstricker]	10	A theory of personality based mainly on psychiatric experience [A. J. Rosanoff] ..	668
PEPSIN-HYDROCHLORIC ACID		PERTUSSIS	
Digestion of keloids, cicatrices and buboes with pepsin-hydrochloric acid [E. Ahlsweide]	1076	Intracutaneous reaction for early diagnosis in pertussis [E. Modigliani and S. De Villa]	832
PEPTIC ULCER		Vaccine treatment of pertussis [R. K. Rewalt]	1130
Some observations on the Sippy treatment of peptic ulcer [J. Friedenwald, and T. H. Morrison]	40		
PERCUSSION NOTE			
Percussion note of the back			

	PAGE
PERTUSSIS VACCINE	
The use of pertussis vaccine [P. Luttinger]	774
PESSARY	
The status of intrauterine stem pessary based on a study of 205 cases with end results in 117 cases [R. M. Rawls]	1061
PFEIFFER BACILLUS	
The antigenic property of the Pfeiffer Bacillus as related to its value in the prophylaxis of epidemic influenza [C. W. Duval, and W. H. Harris]	51
VI. A serological study of the bacillus of Pfeiffer. I. The etiological relation of the bacillus of Pfeiffer to influenza [A. F. Coca, and M. F. Kelley]	932
PHARYNX	
The etiology of acute inflam- mations of the nose, pharynx and tonsils [S. Mudd, S. B. Grant and A. Goldman]	598
The etiology of acute inflam- mations of the nose, pharynx and tonsils [S. Mudd, S. B. Grant, A. Goldman]	678
PHENOLSULPHONEPHTHALEIN TEST	
Phenolsulphonephtalein test and the non-protein nitrogen of the blood in chronic nephritis [R. Fitz].	157
PHLEBECTASIA	
Phlebectasia as a cause of tracheal hemorrhage [B. Freystadt]	394
PHLEBITIS	
Phlebitis and thrombosis [D. Riesman]	877
PHOSPHORUS	
The effect of phosphorous in rickets [D. B. Phemister, E. M. Miller and B. E. Bo- nar]	495
PHYSICAL EXERCISE	
Physical exercise in heart disease [T. B. Barringer].	1003
PHYSICIAN	
The role of the physician in child hygiene [P. Rohmer].	258
PICK'S DISEASE	
Cardio-cirrhosis (Hutinel's or Pick's disease) - etiology [J. C. Navarro]	1125

	PAGE
PICRATE SOLUTIONS	
Studies of blood-sugar; effect of blood constituents on pic- rate solutions. A consider- ation of the limitations of the modified Lewis-Bene- dict test. [D. M. Cowie and J. P. Parsons].....	437
PILOCARPIN	
Bronchial asthma: Response to pilocarpin and epineph- rin [H. L. Alexander and R. Paddock].....	410
PINEAL BODY	
Effect of feeding the pineal body upon the development of the albino rat [W. R. Sisson and J. M. T. Fin- ney, Jr.]	339
PINWORMS	
Treatment of pinworms by bismuth carbonate [N. G. Barrio]	956
PITUITARY EXTRACT	
Administration of a pituitary extract and histamin in a case of diabetes insipidus [R. B. Gibson and F. T. Martin]	514
PITUITRIN	
Dangers from injections of pituitrin [J.W. van Eerten]	691
The administration of pitui- trin at the beginning of the third stage of labor [G. H. Ryder]	895
PLACENTAL TRANSMISSION	
On the placental transmission of so-called normal anti- bodies [G. C. Reyman]....	430
PLANT TISSUES	
Nutritive factors in plant tis- sues. III. Further obser- vations on the distribution of water soluble vitamin [T. B. Osborne and L. B. Men- del]	337
PLASMA	
The plasma and blood-clot- ting efficiency of thrombo- plastic agents <i>in vitro</i> and their stability [P. J. Hanz- lik]	306
PLASMA CULTURES	
Migration of lymphocytes in plasma cultures of human lymph-nodes [W. H. Lewis and L. T. Webster]	624
PLAUT-VINCENT'S ANGINA	
Plaut-Vincent's angina [G. Finder]	712

	PAGE		PAGE
PLEURITIS		pital, 1918-1919 [H. J. John]	423
Apical pleuritis and its relationship to pulmonary tuberculosis [J. G. Van Zwaluwenburg and G. B. Grabfield]	781	Pneumonia in a woman with an habitual high blood-pressure [M. J. Konikow] .	30
Chemotherapeutic studies with ethylhydrocuprein hydrochlorid in experimental pneumococcus pleuritis [J. A. Kolmer, and J. R. Sands] 941		Pneumonia following influenza in the camps in the United States [E. E. Irons] 592	
PLEXUS CHOROIDEI		Recurrent type I pneumonia: serum treatment of two attacks one month apart [H. M. Thomas, Jr.]	596
Concerning heterotopy of the plexus choroidei [S. Kitabayashi]	93	Serum treatment of lobar pneumonia [W.W. Herrick] 775	
PNEUMOCOCCUS		Studies on experimental pneumonia. V. Active immunity against experimental pneumococcus pneumonia in monkeys, following vaccination with living cultures [R. L. Cecil and F. G. Blake]..	234
I. Studies on pneumococcus immunity. Active immunization of monkeys against pneumococcus type I pneumococcus type I vaccine [R. L. Cecil and G. Steffen]...1115		I. Studies on pneumococcus immunity. Active immunization of monkeys against pneumococcus type I pneumococcus with pneumococcus type I vaccine [R. L. Cecil and G. Steffen]	1115
II. A study of the serological relationships of pneumococci from the upper respiratory tract with special reference to common colds and influenzal conditions [G. M. Cooper, L. Mishulow, and N. E. Blanc]	950	The serum treatment of lobar pneumonia [W. L. Niles]..	776
Studies on experimental pneumonia. V. Active immunity against experimental pneumococcus pneumonia in monkeys following vaccination with living cultures of pneumococcus [R. L. Cecil and F. G. Blake]	234	PNEUMONIC CONSOLIDATION	
PNEUMOCOCCUS PLEURITIS		The whispered voice sound, an aid to early diagnosis of pneumonic consolidation [H. H. Lissner]	200
Chemotherapeutic studies with ethylhydrocuprein hydrochlorid in experimental pneumococcus pleuritis [J. A. Kolmer, and J. R. Sands] 941		PNEUMOPATHIES	
PNEUMOCOCCUS VACCINE		Provocation of the beneficial crisis in the primitive pneumopathies by the intravenous injection of anti-pneumococcal serum and adrenalin [M. Renaud]	1080
Pneumococcus vaccine [R. L. Cecil]	690	PNEUMOTHORAX	
PNEUMOKONIOSIS		Artificial pneumothorax [J. Gwerder]	591
Studies on tuberculous infection. VIII. Spontaneous pneumokoniosis in the guinea pig [H. S. Willis]..	931	Discernment of intrathoracic neoplasms and aid of diagnostic pneumothorax [M. Fishberg]	780
PNEUMONIA		Multiple fluid collections in the chest in the course of therapeutic pneumothorax [B. P. Stivelman and J. Rosenblatt]	778
Blood chemistry studies in influenzal pneumonia [C. W. Wells]	332	Spontaneous pneumothorax [E. A. Gray]	717
Experimental streptococcus pneumonia and empyema [F. P. Gay and B. Rhodes]..1107		The value of the pneumothorax treatment of pulmonary tuberculosis [E. P. Boas]	608
Pneumonia at a Base Hos-			

	PAGE
POISON OAK DERMATITIS	
Poison oak dermatitis [Alder-son and Pruet]	920
POLIOMYELITIS	
A case of acute poliomyelitis in an adult [J. Grassmuck] ..	92
Immunological distinctions of encephalitis and poliomyelitis [H. L. Amoss]	725
Poliomyelitis [P. Borobio]...	259
The diagnosis of paralytic or early poliomyelitis [S. A. Levine]	1022
POLYARTHRITIS	
Mitral insufficiency in polyarthrits and syphilis. Influence of antisyphilitic therapy on heart disease [E. Attinger]	563
POLYCYTHEMIA VERA	
A study of polycythemia vera with splenomegaly, with a report of two cases, and a discussion of the treatment by the roentgen rays [E. P. Pendergrass]	1030
POLYPOPIA	
Monocular polyopia in hysteria [P. Schilder]	91
POLYURIA	
Nocturnal polyuria [J. Barach]	977
POSTABORTAL INFECTIONS	
Non-interference in the treatment of puerperal and post-abortion infections [E. L. King]	316
POSTCOMMOTIONAL AMYOTROPHY	
A case of postcommotional amyotrophy in an infant following a shell explosion [P. Hausalter and P. Kahn] ..	148
POSTURAL REST	
Postural rest for pulmonary tuberculosis [G. B. Webb, A. M. Forster and G. P. Gilbert]	489
POTASSIUM	
Direct quantitative determination of potassium and sodium in small quantities of blood [B. Kramer]	52
POTTER VERSION	
Potter version. The elimination of the second stage of labor [M. P. Rucker]	1073
POTT'S DISEASE	
Osteosynthesis in the treatment of Pott's disease [A. L. Duran]	957

	PAGE
PRECIPITIN	
On the quantitative reaction of partially neutralized precipitin <i>in vitro</i> and <i>in vivo</i> . Studies in anaphylaxis. [A. F. Coca and K. Mitsuji]....	440
Specific precipitin for Bence-Jones protein [L. Hektoen] ..	619
PRECIPITIN RESPONSE	
Precipitin response in the blood of rabbits following subarachnoid injections of horse serum [H. L. Alexander]	820
PREGNANCY	
Chronic hemolytic anemia. "The pernicious anemia of pregnancy" [G. R. Minot].	923
Electrocardiographic studies in pregnancy [H. Sachs]..	428
Hematuria in pregnancy [J. K. Quigley]	1073
Ovarian pregnancy with report of a case [J. A. Chalfant]	910
Primary ovarian and primary abdominal pregnancy [H. M. Ray]	910
Syphilis in pregnancy and labor [E. L. Cornell and A. W. Stillians].....	421
PRETUBERCULOUS STATE	
Diagnosis and treatment of the pretuberculous state in infants [P. Richard]	1134
PREVENTIVE MEDICINE	
Influence of the war on preventive medicine and public health [C. St. C. Drake] ..	20
PRIMARY ANTHRAX MENINGITIS	
Anthrax from the shaving brush and primary anthrax meningitis [H. W. Carey].	110
PROPHYLAXIS	
The antigenic property of the Pfeiffer Bacillus as related to its value in the prophylaxis of epidemic influenza [C. W. Duval, and W. H. Harris] ..	51
PROSTATE	
The role of the prostate and seminal vesicles in arthritis [O. S. Lowsley]	790
PROSTATE GLAND	
Physiological and pharmacological studies of the prostate gland [D. I. Macht and V. Bloom]	540
PROTEINS	
Disturbed protein and fat	

	PAGE		PAGE
metabolism and the origin of diabetic acidosis [M. Labbe]	429	treatment of chronic cases of arthritis with special reference to the use of secondary protease [R. G. Snyder and M. A. Ramirez]	789
Immunological experiments with denatured and insoluble proteins [C. L. A. Schmidt]	1105	PRURITUS	
Nutritive values of the proteins of the barley, oat, and wheat kernels [T. B. Osborne and L. B. Mendel] ...	249	Pruritus of anaphylactic origin [M. B. Cohen]	521
Specific precipitin for Bence-Jones protein [L. Hektoen]	619	PSORIASIS	
The intravenous use of foreign protein in the treatment of chronic cases of arthritis with special reference to the use of secondary protease [R. G. Snyder and M. A. Ramirez]	789	Cases illustrating the influence of trauma on the distribution of psoriasis [W. D. D. Small]	804
PROTEIN BODIES		Two cases of psoriasis treated by Danysz's method [H. W. Barber]	803
The relation between the absorption of antibodies and the isolated protein bodies [U. Rokuro]	730	PSYCHIC SECRETION	
PROTEIN FOOD		Gastric response to foods. X. The psychic secretion of gastric juice in normal men. XI. The influence of tea, coffee and cocoa upon digestion [R. J. Miller, O. Bergeim, N. B. Rehfuess, P. B. Hawk]	235
Renal irritation in man from high protein feeding [T. L. Squier, and L. H. Newburgh]	945	PSYCHIATRY	
The influence of protein food on increased blood-pressure [H. O. Mosenthal]	535	Constitution, hereditary biology and psychiatry [E. Kahn]	90
PROTEIN-PRECIPIATION		PSYCHOLOGY	
Astringency and protein-precipitation by masked tannin compounds [T. Sollmann]	811	The outlook for vocational psychology [F. Watts]	382
PROTEIN SENSITIZATION		PSYCHOPATHIC CHILD	
Eczema in the breast-fed baby, and protein sensitization [E. S. O'Keefe]	1023	The problem of the psychopathic child [H. H. Goddard]	837
Protein sensitization in eczema [M. Ramirez]	310	PSYCHOSIS	
PROTEIN SHOCK		Psychosis during involution [P. H. Roxo]	375
The alkali reserve of the blood-plasma during protein shock [A. A. Eggstein]	1106	The position of manic-depressive psychosis in the system of psychoses [W. Beyerman]	852
PROTEINURIA		PSYCHOTHERAPY	
Bence-Jones proteinuria: a report of three cases with metabolic studies. [W. Walters]	399	Present status of psychotherapy [O. Veraguth]	763
PROTEOLYTIC FERMENT		PUBERTY	
The proteolytic ferment of the tumors and the blood of patients suffering with cancer [Loeper, Faroy and Tonnet]	314	Diabetes insipidus and puberty [T. Silvestri]	739
PROTEOSE		PUBLIC HEALTH	
The intravenous use of foreign protein in the		Influence of the war on preventive medicine and public health [C. St. C. Drake]	20
		Nutrition and public health with special reference to vitamins [J. F. McClendon]	411
		PUERPERAL INFECTIONS	
		Non-interference in the treatment of puerperal and postabortal infections [E. L. King]	316

	PAGE
PUERPERIUM	
Thrombophlebitis during the puerperium following influenza, with a report of cases [L. F. Smead]	1083
PULMONARY ATELECTASIS	
Pulmonary atelectasis as a source of confusion in physical examination of the chest [C. A. Schmid and H. Sewall]	785
PULMONARY ARTERY	
Congenital stenosis of pulmonary artery with interventricular communication [O. Josue]	31
PULMONARY EMPHYSEMA	
Observations on the pathologic physiology of chronic pulmonary emphysema [R. W. Scott]	423
PULMONARY SEQUELS	
Pulmonary sequels of influenza [M. Fishberg]	596
PULMONARY TUBERCULOSIS	
Apical pleuritis and its relationship to pulmonary tuberculosis [J. G. Van Zwaluwenburg and G. B. Grabfield]	781
Conditions commonly mistaken for pulmonary tuberculosis [B. P. Stivelman]	784
Postural rest for pulmonary tuberculosis [G. B. Webb, A. M. Forster and G. B. Gilbert]	489
Some deductions from the statistics on the prevention of pulmonary tuberculosis [H. C. Given]	984
The clinical importance of the different types of pulmonary tuberculosis as determined by roentgen examination [R. G. Allison]	465
The roentgenographic pathology of pulmonary tuberculosis, including description of tissue changes as revealed by stereograms and a critical study of the clinical bearing of the mutations of destruction and repair [J. B. Amberson, Jr.]	843
The tonsillar route of infection in pulmonary tuberculosis [J. G. Van Zwaluwenburg and G. P. Grabfield]	779

	PAGE
The value of the pneumothorax treatment of pulmonary tuberculosis [E. P. Boas] ..	603
PULSE	
Slowing of the pulse in Graves' disease during sleep [G. Osti]	323
PULSE-RATE	
A study of the correlation of the basal metabolism and pulse-rate in patients with hyperthyroidism [C. C. Sturgis and E. H. Tompkins]	224
Pulse-rate and blood-pressure responses of men to postural changes [M. M. Ellis] ..	978
The effect of the subcutaneous injection of adrenalin chlorid on the heat production, blood-pressure, and pulse-rate in man [I. Sandiford]	55
PUPILS	
Significance of unequal pupils [E. B. Brooks]	665
PURKINJE FIBERS	
The injection of the Purkinje fibers and the lymphatics of the endocardium [J. Trias] ..	430
PURPURA	
A case of purpura during serum disease [H. E. Maloney]	19
PUTREFACTIVE INTESTINAL FLORA	
Certain nutritional disorders of children associated with a putrefactive intestinal flora [L. Porter, G. B. Morris, and K. F. Meyer]	166
PYELONEPHRITIS	
Focal infection and selective localization of streptococci in pyelonephritis [H. C. Bumpus and J. G. Meisser] ..	821
PYEMIC OTITIS	
Ligation of the jugular in pyemic otitis [G. Gradenigo]	507
PYLORIC SPHINCTER	
Observations on the behavior of the normal pyloric sphincter in man [C. W. McClure and L. Reynolds] ..	558
On the behavior of the pyloric sphincter in normal man [C. W. McClure, K. Reynolds and C. O. Schwartz] ..	425
PYLORIC STENOSIS	
General review of medical	

	PAGE		PAGE
treatment of pyloric stenosis in infants [J. Comby]..	1129	The action of radium and x-rays on malignant cells [T. H. D. Webster]	744
Two important roentgenoscopic signs in pyloric stenosis [K. De Hart]	370	The treatment of tuberculous adenitis by roentgen rays and radium [R. H. Boggs]..	1035
QUADRANT LESIONS		The red cell blood content of those handling radium for therapeutic purposes [J. C. Mottram]	219
Roentgenological aspects of lower right quadrant lesions [F. H. Baetjer and J. Freidenwald]	551	Treatment of skin diseases by radium [Sainz de Aja]....	181
QUININ		RADIUM THERAPY	
Studies on the various types of malarial infection and the effect of quinin treatment among the native population of the Malay Archipelago [N. H. Swellengrebel, and J. M. H. De Graaf Swellengrebel]	50	Some points in the technic of radium therapy [Oppert]..	370
RABIES		RAT-BITE FEVER	
Investigations concerning the characteristics of blood-serum in individuals inoculated against rabies [J. Kostrzewski]	322	Flagellum of the microorganism of rat-bite fever [K. Adachi]	1010
Present status of rabies [B. M. Underhill]	216	Review of rat-bite fever (Sodoku) in children [J. Comby]	450
RADIATION		RECTAL INJECTIONS	
The management of toxic goiter with radiation [J. T. Stevens]	1034	A comparison of rectal with colon injections of epinephrin, with reference to pressor effects and to glycosuria [H. G. Barbour and F. H. Rapoport]	531
RADIUM		RECTO-COLITIS	
Actinomycosis, treated with radium [S. A. Heyerdahl].	182	Severe non-dysenteric colitis and recto-colitis [R. Ben-saude and E. Antoine)....	393
Contribution to the study of the internal use of radium and emanation [G. Bardet and D. Bardet]	369	RED CELL BLOOD CONTENT	
Histological changes in the bone marrow of rats exposed to the radiation from radium [J. C. Mottram]..	467	The red cell blood content of those handling radium for therapeutic purposes [J. C. Mottram]	219
Observations on the effects of radium treatment on war injuries in the neighborhood of nerves and blood-vessels [W. C. Stevenson].	557	RELAXATION	
Preliminary ideas in the practice of radium therapy in regard to the local applications of emanation and of radium [Regaud].....	468	Reduction of nervous irritability and excitement by progressive relaxation [E. Jacobson]	671
Radium and its therapeutic value [A. H. Werner]	555	RENAL EPITHELIUM	
Radium therapy in lupus vulgaris [J. Kopp]	753	A preliminary paper on the relation between the amount of stainable lipoid material in the renal epithelium and the susceptibility of the kidney to the toxic effect of the general anesthetics [W. De B. Mac-Nider]	825
Radium in toxic goiter. Its treatment [W.H.B. Aikins]	927	RENAL EXCRETION	
Recent developments in radium therapy [R. Duncan]..	746	Urinary antiseptics: A study of the antiseptic properties and the renal excretion of 204 anilin dyes [E. G. Davis]	817

	PAGE
RENAL INSUFFICIENCY	
A test for early renal insufficiency [T. B. Magath].....	1111
RENAL STONE	
The indication for nephrectomy in renal stone [N. J. MacLean]	916
RENAL TRACT	
Collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (the renal tract) [I. S. Hirsch]	267
Collected abstract of the literature on roentgenology for the year 1919. The renal tract [I. S. Hirsch].	355
RESPIRATORY APPARATUS	
About the action of serums administered through the respiratory apparatus [Besredka]	32
RESPIRATORY DISEASES	
Report on the prophylactic vaccination of 1536 persons against acute respiratory disease's 1919-1920, [A. I. von Sholly and W. H. Park]	409
RESPIRATORY INFECTION	
Microbial studies on acute respiratory infection with especial consideration of immunological types [W. H. Park, A. W. Williams, and C. Krumwiede]	533
RETINITIS	
The retinitis of diabetes mellitus [H. P. Wagener and R. M. Wilder].....	406
RHUS DIVERSILOBA	
Susceptibility to dermatitis from rhus diversiloba [J. B. McNair]	919
RICKETS	
The effect of phosphorus in rickets [D. B. Phemister, E. M. Miller and B. E. Bonar]	495
ROENTGEN DIAGNOSIS	
On roentgen diagnosis of intracranial classification [S. Strom]	647
ROENTGEN RAYS	
Injury of eyes by roentgen rays [Birch-Hirschfeld]...	750
The influence of roentgen rays on the gastric secretion [F. Wachter]	842
The treatment of tuberculous	

adenitis by roentgen rays and radium [R. H. Boggs].	1035
ROENTGENOGRAPHIC STUDIES	
A collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (gastro-intestinal tract) [I. S. Hirsch]	73
A collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (Gastro-intestinal tract) [I. S. Hirsch].	169
Collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (The urinary tract and the renal tract) [I. S. Hirsch]	261
Collected abstract of the literature on roentgenology for the year 1919. The renal tract, and bone and joints [I. S. Hirsch]	355
Collected abstract of the literature on roentgenology for the year 1919. The head [I. S. Hirsch].....	457
Induced atrophy of hypertrophied tonsils by roentgen ray [J. B. Murphy, W. D. Witherbee, S. L. Craig, R. G. Hussey, E. Sturm]	562
Roentgen examination of the new born [E. Vogt]	654
Roentgen therapy in superficial malignancy [W. H. Meyer]	655
Roentgen-ray studies of bronchial function [J. G. M. Bullowa and C. Gottlieb].	466
Roentgen-ray treatment of cutaneous cancer [H. H. Hazen]	743
Roentgenological aspects of lower right quadrant lesions [F. H. Bætjer and J. Freidenwald]	551
Roentgenologic demonstration of the heart in pericardial effusion [H. Klobner and H. Hochschild]...	560
Roentgenologic demonstration of the base of the skull. The posterior cranial fossa [K. Staunig]	750
The clinical importance of the different types of pulmonary tuberculosis as de-	

	PAGE		PAGE
terminated by roentgen examination [R. G. Allison]....	465	[C. H. Neilson and H. Wheelon]	1116
The newer technic for deep roentgentherapy [I. T. Stevens]	657	Studies on the resistance of the red blood-cells. II. The resistance of the red blood-cells in disease to the hemolytic action of sapotoxin [C. H. Neilson and H. Wheelon]	1110
Two important roentgenoscopic signs in pyloric stenosis [K. De Hart]	370	Studies on the resistance of the red blood-cells. III. The relation of cholesterol to the resistance of the red blood-cells to the hemolytic action of sapotoxin [C. H. Neilson and H. Wheelon] ..	1114
The roentgenographic pathology of pulmonary tuberculosis, including description of tissue changes as revealed by stereograms and a critical study of the clinical bearing of the mutations of destruction and repair [J. B. Amberson, Jr.]	843	SARATOGA-NAUHEIM BATHS	
RYE		Study of the natural Saratoga-Nauheim baths at Saratoga Springs, N. Y. [J. F. Humphrey]	395
Nutritive values of the proteins of the barley, oat, rye, and wheat kernels [T. B. Osborne and L. B. Mendel]	249	SARCOMA	
SACCHAROSE		A case of idiopathic multiple pigmented hemorrhagic sarcoma [C. P. G. Wakeley and M. S. Thomson]	848
Injections of saccharose [D. Le Monacho]	1071	SCARLET FEVER	
SACCULAR ANEURYSM		A new diagnostic method in scarlet fever [J. Neumann]	215
Saccular aneurysm of the descending thoracic aorta [E. S. DuBray]	589	Heart in scarlet fever [H. A. Rosenbaum]	420
SALICYLIC ACID		The etiology of scarlet fever. III. The alkali-producing organisms in scarlet fever [R. W. Pryer]	1113
The liberation of free salicylic acid from salicylate in the circulation [P. J. Hanzlik]	945	SCIATICA	
SALIVARY FISTULAE		Etiology and pathogenesis of sciatica [D. E. Lindstedt].	106
Treatment of salivary fistulae by massage and hot air [P. Kouindjy]	609	SCIATIC NEURALGIA	
SALMON		Treatment of sciatic neuralgia with epidural injections [P. H. Feuilleade]....	506
Bacterial decomposition of salmon [A. C. Hunter]	146	* SCLERODERMA	
SALPINGITIS ISTHMICA NODOSA		A band of scleroderma of the left lower limb with zoniform vitiligo of the right half of the abdomen in a syphilitic girl [A. B. Marfan and N. Rabuteau]....	353
Congenital etiology of salpingitis isthmica nodosa [W. Lahm]	869	SEASICKNESS	
SALVARSAN		Seasickness [J. Drummond].	122
An experimental investigation of certain features of the pharmacological action of salvarsan [D. E. Jackson and G. Raap]	144	SEMI-CIRCULAR CANALS	
Treatment of "Vincent's Angina" by intravenous injections of salvarsan [W. J. Young]	203	Labyrinth and equilibrium. I. A comparison of the effect of removal of the otolith organs and of the semi-circular canals [S. S. Maxwell]	333
SAPOTOXIN		SEMILUNAR CARTILAGE	
Studies on the resistance of the red blood-cells. I. Resistance of the red blood-cells in health to the hemolytic action of sapotoxin		A case of dislocated semilunar cartilage [F. G. Linde]	601

	PAGE
SEMINAL VESICLES	
The role of the prostate and seminal vesicles in arthritis [O. S. Lowsley]	790
SEMINAL VESICULITIS	
Seminal vesiculitis [M. Ziegler]	791
SEPSIS	
Treatment of abortion complicated by sepsis [G. A. Peck]	902
SEROLOGY	
Serological studies on tuberculosis [Y. Nishida and S. A. Petroff]	148
SERUM	
About the action of serums administered through the respiratory apparatus [Besredka]	32
Etiology of yellow fever. Serum treatment of animals infected with leptospira icteroides [H. Noguchi]....	143
On the so-called Neisser-Wechsberg inhibiting phenomenon in bactericidal immune sera [T. Thjotta] ...	61
Recovery from tuberculous meningitis after treatment with intraspinal injections of antimeningococcic serum [A. W. Hollis and I. H. Pardee]	188
Recurrent type I pneumonia: serum treatment of two attacks one month apart [H. M. Thomas, Jr.]	596
Relative effectiveness of various forms of treatment in neurosyphilis. Observations of the comparative value of routine intravenous treatment, spinal drainage and arsphenamized serum intraspinally [J. H. Stokes and E. D. Osborne]	766
Serum treatment of lobar pneumonia [W.W. Herrick]	775
The serum treatment of lobar pneumonia [W. L. Niles].	776
The use of the serum of convalescents in the treatment of influenza-pneumonia; a summary of the results in a series of 101 cases [G. P. Sanborn]	125
The Weil-Felix reaction and X19 in immune serum agglutination [C. Prausnitz].	244
SERUM DISEASE	
A case of purpura during	

	PAGE
serum disease [H. E. Maloney]	19
Relation of antibody and antigen to serum disease susceptibility [G. M. Mackenzie and W. H. Leake]	1010
SERUM THERAPY	
Serumtherapy in epilepsy [W. Held]	94
SEXUAL NEURASTHENIA	
Sexual neurasthenia [H. Bruni]	572
SHICK TEST	
The Shick test, its control and active immunization against diphtheria [A. J. Blau]	334
SIGMOID IMPACTION	
Sigmoid impaction—its significance, pathology and treatment [C. S. King]	1139
SILVER SALVARSAN	
Silver salvarsan in the treatment of syphilis [C. M. Watson]	584
SILVER SALVARSAN NATRIUM	
Silversalvarsan natrium [Z. H. A. Van Den Belt].....	709
SINUS DISEASE	
Bronchiectasis and bronchitis associated with accessory sinus disease [G. B. Webb and G. B. Gilbert]	590
SIPPY TREATMENT	
Some observations on the Sippy treatment of peptic ulcer [J. Friedenwald, and T. H. Morrison]	40
SKIN	
Chronic focal infections as affecting the skin [E. L. McEwen]	519
Diphtheria of the skin [M. Winkler]	731
Neurotic suffusion of the skin [R. Frenzel]	89
Treatment of skin diseases by radium [Sainz de Aja] ...	181
SKULL	
Roentgenologic demonstration of the base of the skull. The posterior cranial fossa. [K. Staunig]	750
Treatment of Jacksonian epilepsy due to old injuries of the skull [Leriche]	190
SLEEP	
Slowing of the pulse in Graves' disease during sleep [G. Osti]	323

	PAGE
SMALLPOX	
The initial exanthem of smallpox [M. Tsurumi and S. Isono]	981
SMEAR	
Comparison of smear, culture and complement-fixation in chronic gonorrhea in woman [J. D. Smith and M. A. Wilson]	436
SODIUM	
Direct quantitative determination of potassium and sodium in small quantities of blood [B. Kramer].	52
SODIUM CITRATE	
Sodium citrate treatment of thromboangiitis obliterans [W. A. Steel]	490
The slow intravenous administration of large doses of sodium citrate [S. Hirshfeld and H. Neuhof].	813
SOLE	
Malignant melanomata: Especially those occurring on the heel and sole of the foot [W. H. D. Stevenson]	787
SOMATIC SYMPTOMS	
Somatic symptoms in nervous and mental diseases [F. X. Dercum]	283
SPÄHLINGER TREATMENT	
New anti-serum for tuberculosis [Editorial].....	419
New serum for tuberculosis [News Item].....	418
Spahlinger treatment [News Item]	420
Spahlinger's treatment of tuberculosis [News Item].	416
The search for a specific treatment of tuberculosis [W. C. Wilkinson]	874
The search for a specific of tuberculosis. The Spahlinger treatment [Editorial] ..	1059
The Spahlinger treatment. Letter [W. C. Wilkinson]..	417
SPASMODIC STENOSIS	
Spasmodic stenosis of the esophagus [E. B. Freeman]	805
SPINA BIFIDA	
Spina bifida and other malformations of the spine [W. Altschul]	552
SPINAL CORD	
Further observations on the relation of the spinal cord to the spontaneous liberation of epinephrin from the	

	PAGE
adrenals, and the action of strychnin after cervical cord section [G. N. Stewart and J. M. Rogoff]	342
SPINAL FLUID	
The alkali reserve of the blood plasma, spinal fluid and lymph [J. B. Collip, and P. L. Backus].....	388
SPINE	
Spina bifida and other malformations of the spine [W. Altschul]	552
SPIROCHETES	
Strain in spirochetes [B. P. Thom]	728
SPIROCHETE INFECTIONS	
Chemotherapy of trypanosome and spirochete infections. Biological series. II. The therapeutic action of n-phenylglycinamid-p-arsonic acid in experimental trypanosomiasis of mice, rats and guinea pigs. III. The therapeutic action of n-phenylglycinamid-p-arsonic acid in experimental trypanosomiasis of rabbits [L. Pearce, and H. Brown] ...	63
Chemotherapy of trypanosome and spirochete infections. Biological series. IV. The action of N-phenylglycinamid-p-arsonic acid upon spirochete infections [W. H. Brown and L. Pearce]	156
SPIROCHETE PALLIDA	
Latent infections with the demonstration of spirochete pallida in lymphoid tissues of the rabbit [W. H. Brown and L. Pearce]	818
SPLANCHNIC MECHANISM	
A study of the action of cocaine on the splanchnic and cervical sympathetic neuromuscular mechanisms [A. L. Tatum]	239
SPLEEN	
The internal secretion of the spleen [N. B. Eddy]	1147
SPLENOMEGALY	
A study of polycythemia vera with splenomegaly, with a report of two cases, and a discussion of the treatment by the roentgen rays [E. P. Pendergrass]	1030
Contribution to the study of	

	PAGE
anemia with splenomegaly in nurslings (2 papers) [G. L. Hallez]	444
SPRUE	
The absence of pancreatic secretions in sprue and the employment of pancreatic extract in the treatment of this disease [T. R. Brown]	968
SPUTA	
A comparison of the three methods of examining sputa for <i>Bacillus tuberculosis</i> [L. R. Jones]	248
The relation of sputum bacteria to asthma [F. M. Rackemann]	229
STARVATION-OSTEOMALACIA	
Starvation-osteomalacia [A. Cramer and P. Schiff]	204
Congenital stenosis of the duodenum, general review [J. Comby]	641
STENOSIS	
Congenital stenosis of pulmonary artery with interventricular communication [O. Josue]	31
STIGMATA	
Stigmata of predisposition to bone and joint tubercule [W. C. Rivers]	160
STOMACH	
A collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (gastro-intestinal tract) [I. S. Hirsch].	73
Acute dilatation of the stomach following gynecological operations [P. I. Nixon] ..	1102
Behavior of blood-pressure during the use of the stomach tube [C. A. McKinlay]	387
Clinical review of stomach symptoms [J. M. Blackford]	516
Diagnosis of carcinoma of the stomach, considered from a standpoint of gastric secretions [R. Strauss]	104
Gastric analysis, the interdigestive phase, or the principles governing the phenomena of a resting stomach [M. E. Rehfuß and P. B. Hawk]	729
Hemorrhage from the stomach and esophagus [F. B. Lund and J. A. Foley]	605

	PAGE
Hour-glass contraction of the stomach [A. F. Hurst and R. P. Rowlands]	1123
Primary lymphosarcoma of the stomach. A report of twelve cases [A. C. Broders and A. F. Mahle]	606
Irritation of the vagus and hemorrhagic erosions of the stomach [K. Nicolaysen]..	245
Syphilis of the stomach [A. A. Goldsmith]	1096
The bacteriology of the fast-ing stomach and duodenum. A study based on the findings in thirty dogs [P. H. Poppens]	818
The diagnosis of syphilitic tumors in the stomach and intestines [L. Bard]	34
The reflex stomach from the surgeon's point of view [G. D. Stewart]	792
STOMACH TROUBLE	
Visceroptosis as a cause of "stomach trouble" [W. D. Reid]	701
STOOLS	
Stools and their relation to the feeding in infants [J. I. Grover]	453
STREPTOCOCCUS	
Classification of streptococcus. I. Streptococci isolated from normal throats. II. Streptococci isolated from influenza throats. Classification by sugar fermentation [L. Arnold]	142
Focal infection and selective localization of streptococci in pyelonephritis [H. C. Bumpus and J. G. Meisser] ..	821
STREPTOCOCCUS PERITONITIS	
Gastric perforation and streptococcus peritonitis in a nursing one month of age Philip and Fey]	165
STRYCHNIN	
Further observations on the relation of the spinal cord to the spontaneous liberation of epinephrin from the adrenals, and the action of strychnin after cervical cord section [G. N. Stewart and J. M. Rogoff]	342
SUBARACHNOID INJECTIONS	
Precipitin response in the blood of rabbits following subarachnoid injections of	

	PAGE		PAGE
horse serum [H. L. Alexander]	820	Comparative values of complement-fixation methods in syphilis [H. D. McIntyre, E. A. North and A. P. McIntyre]	579
SULPHUR		Congenital syphilis in the second generation [E. Bruusgaard]	740
Sulphur in the cancerous liver [A. Robin and A. Bournigaul]	388	Conjugal syphilis of the nervous system [A. Gordon] ..	1048
SUPERFECUNDATION		Elephantiasis with reference to syphilis [J. Lintz]	582
Superfetation or superfecundation? [H. E. Radasch] ..	905	Elephantiasis with reference to syphilis [J. Lintz]	867
SUPERFETATION		Emotional exophthalmic goiter and syphilis [C. Pfeiffer] ..	405
Superfetation or supercundation? [H. E. Radasch]	905	Experimental syphilis in the rabbit. VI. Affections of bone, cartilage, tendons, and synovial membranes [W. H. Brown, L. Pearce and W. D. Witherbee]	723
SUPPURATIVE PERITONITIS		Hereditary syphilis [E. A. Sainz de Aja]	162
The treatment of diffuse suppurative peritonitis [J. S. MacEachern]	884	Mitral insufficiency in polyarthritis and syphilis. Influence of antisiphilitic therapy on heart disease [E. Attinger]	563
SUPRARENAL GLANDS		On the treatment of tertiary syphilis with diiodyl [F. W. Oelze]	37
Some observations on the functions of the suprarenal glands in white rats [H. V. Exner]	68	Polariscopic study of urines of a group of syphilitics [S. P. Taylor and K. P. A. Taylor]	1007
SWEAT		Quaternary syphilitic eruption in a diabetic [C. Simon]	222
Effect of work and heat on the hydrogen concentration of the sweat [G. A. Talbert]	51	Silver salvarsan in the treatment of syphilis [C. M. Walson]	584
SYMBOLIC THINKING		1. Superinfection in experimental syphilis following the administration of subcurative doses of arsphenamin or neoarsphenamin [W. H. Brown and L. Pearce]	1008
Disorders of symbolic thinking and expression [H. Head]	471	Syphilis in pregnancy and labor [E. L. Cornell and A. W. Stillians]	421
SYNOVIAL MEMBRANES		Syphilis of the nervous system in children [E. L. Hunt]	638
Experimental syphilis in the rabbit. VI. Affections of bone, cartilage, tendons, and synovial membranes [W. H. Brown, L. Pearce and W. D. Witherbee]	723	Syphilis as an etiologic factor in nodular cirrhosis of the liver [L. J. Owen]	584
SYPHILIS		Syphilis of the heart [H. Brooks]	707
A band of scleroderma of the left lower limb with zoniform vitiligo of the right half of the abdomen in a syphilitic girl [A. B. Marfan and N. Rabuteau]	353	Syphilis of the stomach [A. A. Goldsmith]	1096
A statistical report on the incidence of congenital syphilis [L. T. Royster]	585		
A study of the Wassermann test. Reaction in a large group of supposedly non-syphilitic individuals, including large group of diabetics and nephritics [J. R. Williams]	812		
Alcohol and syphilis as causes of mental diseases [G. H. Kirby]	660		
An experimental study of the latent syphilitic as a carrier [F. Ebersson and M. Engman]	533		

	PAGE
Syphilis of the trachea and bronchi: A resume of the diagnostic features with three case reports [P. M. Stimson]	980
Syphilitic jaundice in early infancy [G. Blechmann]...	441
The cerebrospinal fluid in treated syphilis [J. E. Moore]	565
The diagnosis of syphilitic tumors in the stomach and intestines [L. Bard]	34
The importance of a knowledge of syphilis to the internist [E. B. Bradley]	499
The oculo-cardiac reflex in syphilis [G. Thibierge and Routelier]	101
Treatment of syphilis of the nervous system [J. A. Siccare]	372
Treatment of syphilitic aortitis [Vaques, Laubry and Donzelot]	101
Vascular syphilis [Bayet] ...	36
Vascular syphilis [Etienne].	35
X-ray pictures of the bones in the diagnosis of syphilis in the fetus and in young infants [P. G. Shipley, J. W. Pearson, A. A. Weech, and C. H. Greene]	1141
SYPHILITIC ICTERUS	
Chronic syphilitic icterus in adults [Castaigne and Pailard]	422
SYPHILITIC ICTERUS	
Syngomyella in children [J. M. De Villaverde]	1021
TABES	
Juvenile tabes [H. L. Parker]	284
Juvenile tabes [C. Rosenheck]	399
TABES DORSALIS	
Hypothyroidism and tabes dorsalis [S. E. Jelliffe]	661
TACHYCARDIA	
Paroxysmal tachycardia, with reference to nomotopic tachycardia and the role of the extrinsic cardiac nerves [A. M. Wedd]	707
TANNIN COMPOUNDS	
Astringency and protein-precipitation by masked tannin compounds [T. Sollmann]..	811
TAPEWORM	
On the life-history of <i>Davainca tetragona</i> , a fowl tapeworm [J. E. Ackert]..	242

	PAGE
TEA	
Gastric response to foods. X. The psychic secretion of gastric juice in normal men. XI. The influence of tea, coffee and cocoa upon digestion [R. J. Miller, O. Bergeim, N. B. Rehfuess, P. B. Hawk]	235
Tea intoxication [N. A. Starr]	918
TELANGIECTASES	
Telangiectases of the face and mucous membranes of the nose and throat associated with severe epistaxis [W. Freudenthal]	677
TELANGIECTASIA	
Hereditary hemorrhagic telangiectasia with recurring (familial) hereditary epistaxis [H. I. Goldstein]	401
TEMPERATURE	
Effect of high temperature upon the action and toxicity of digitalis [A. D. Hirschfelder, J. Bicek, F. J. Kucera and W. Hanson]...	434
TENDONS	
Experimental syphilis in the rabbit. VI. Affections of bone, cartilage, tendons, and synovial membranes [W. H. Brown, L. Pearce and W. D. Witherbee]	723
TESTES	
Normal and morbid conditions of the testes from birth to old age in one hundred asylum and hospital cases [F. W. Mott]	64
Normal and morbid conditions of the testes from birth to old age in one hundred asylum and hospital cases [F. W. Mott]	243
TEST	
Comparative values of complement-fixation methods in syphilis [H. D. McIntyre, E. A. North and A. P. McIntyre]	579
Studies of blood sugar; effect of blood constituents on picrate solutions. A consideration of the limitations of the modified Lewis-Benedict test. [D. M. Cowie and J. P. Parsons].....	437
Studies on disorders of the thyroid. II. Further experiences with the epineph-	

	PAGE		PAGE
rin hypersensitiveness test, with especial reference to "diffuse adenomatosis" of the thyroid gland [E. Goetsch]	567	hyperthyroidism (thyrotoxic adenoma). A history of the recognition of this disease as a clinical entity. A study of the symptomatology with basal metabolic rates [W. M. Boothby] ...	1148
The Wassermann test in patients affected with malaria in the tropics [F. H. Heherwerth and W. A. Kop]	534	Basal metabolism as an index of treatment in diseases of the thyroid [F. H. Lahey and S. M. Jordan]	851
The whys and wherefores of unreliable Wassermann reports [W. Krauss]	580	Ergot in typhoid [L. Ather-ton]	1074
TETANY		Studies on disorders of the thyroid. II. Further experiences with the epinephrin hypersensitiveness test, with especial reference to "diffuse adenomatosis" of the thyroid gland [E. Goetsch]	567
A study of forced respiration: experimental production of tetany [S. B. Grant and A. Goldman]	341	The adrenals and thyroid in experimental tuberculosis [G. B. Webb, G. B. Gilbert and C. T. Ryder]	830
Adult tetany and methylguanidin. A metabolic study [L. Findlay and J. S. Sharpe]	148	The relation of the thyroid and of the adrenals to the electric conductivity of other tissues [G. W. Crile]	568
Studies in metabolic changes in experimental tetany [T. Togawa]	147	THYROID DISEASES	
Tetany and the administration of alkalis [P. S. Henderson]	28	The value of basal metabolism studies in the diagnosis and treatment of thyroid diseases [A. S. Rowe] ...	1006
Treatment of tetanus [S. O. Freedlander]	969	THYROID FEEDING	
THEOBROMIN		The influence of thyroid feeding upon the physiological action of the pancreas [H. Hoshimoto]	335
The action of caffeine, theobromin and theophyllin on the mammalian and batrachian heart [R. St. A. Heathcote]	544	THYROID GLAND	
THEOPHYLLIN		Acute infection of the thyroid gland [C. R. Edwards] ...	694
The action of caffeine, theobromin and theophyllin on the mammalian and batrachian heart [R. St. A. Heathcote]	544	The thyroid gland and thyrotoxicosis [A. W. Hamner]	1042
THROAT		THYROID SECRETION	
Telangiectases of the face and mucous membranes of the nose and throat associated with severe epistaxis [W. Freudenthal]	677	Attempt to detect thyroid secretion in blood obtained from the glands of individuals with exophthalmic goiter and other conditions involving the thyroid [J. M. Rogoff and H. Goldblatt] ..	1055
THROMBO-ANGIITIS OBLITERANS		THYROTOXIC ADENOMA	
Sodium citrate treatment of thromboangitis obliterans [W. A. Steel]	490	Adenoma of the thyroid with hyperthyroidism (thyrotoxic adenoma). A history of the recognition of this disease as a clinical entity. A study of the symptomat-	
THROMBOPHLEBITIS			
Thrombophlebitis during the puerperium following influenza, with a report of cases [L. F. Smead]	1083		
THROMBOSIS			
Phlebitis and thrombosis [D. Riesman]	877		
THYROID			
Adenoma of the thyroid with			

	PAGE
ology with basal metabolic rates [W. M. Boothby] ...	1148
TOBACCO	
An output study of users and non-users of tobacco in a strenuous physical occupation [J. P. Baumberger, E. E. Perry, and E. G. Martin] ...	928
Attacks of unilateral amaurosis due to the abuse of tobacco, with changes in the color of the iris [P. Pagniez] ...	400
The effect of tobacco on man [W. J. Gies, M. Kahn, and O. V. Limerick] ...	899
TONGUE	
Bifid appearance of the tongue due to a short frenum [V. Veau and C. Ruppe] ...	838
Goiter of the tongue [E. Kohl] ...	599
TONSIL	
Bacteriologic studies of the upper respiratory passages. I. Hemolytic streptococci of the adenoids. II. The pneumococci and nonhemolytic streptococci of the adenoids and tonsils. III. The influenza bacilli (Pfeiffer) of the adenoids and tonsils. [I. Pilot and S. J. Pearlman] ...	1014
Effect of small doses of x-rays on hypertrophied tonsils and other lymphoid structures of the nasopharynx [J. B. Murphy, R. D. Hussey, W. W. Witherbee, S. L. Craig, and E. Sturm] ...	1039
Induced atrophy of hypertrophied tonsils by roentgen ray [J. B. Murphy, W. D. Witherbee, S. L. Craig, R. G. Hussey and E. Sturm] ...	562
Primary lymphosarcoma of the tonsil [F. Fedele] ...	530
The diphtheria bacilli and diphtheroids of the adenoids and tonsils [I. Pilot] ...	1021
The etiology of acute inflammations of the nose, pharynx and tonsils [S. Mudd, S. B. Grant and A. Goldman] ...	598
The etiology of acute inflammations of the nose, pharynx and tonsils [S. Mudd, S. B. Grant and A. Goldman] ...	678

	PAGE
The incidence and histopathology of tuberculosis of the tonsils based on eight thousand six hundred tonsillectomies [C. V. Weller] ...	783
The tonsillar route of infection in pulmonary tuberculosis [J. G. Van Zwaluwenburg and G. P. Grabfield] ...	779
Tonsil infections [S. R. Salzmann] ...	38
X-ray treatment of tonsils and adenoids [W. D. Witherbee] ...	1027
TOXIC AGENTS	
The toxic agents developed in the course of acute intestinal obstruction, and their action [H. B. Stone] ...	625
TOXIC GOITER	
Radium in toxic goiter. Its treatment [W.H.B. Aikins] ...	927
TRACHEOBRONCHIAL ADENOPATHY	
Diagnosis and significance of tracheobronchial adenopathy [R. M. Balyeat] ...	735
TRACHEA	
Syphilis of the trachea and bronchi: A resume of the diagnostic features with three case reports [P. M. Stimson] ...	980
TRACHEAL HEMORRHAGE	
Phlebectasia as a cause of tracheal hemorrhage [B. Freystadt] ...	394
TRANSFUSION	
Blood changes in a case of hemophilia after transfusion [H. A. Bulger] ...	540
Blood transfusion in the newborn [A. Bamberger] ...	256
Rubber tubing as a factor in reaction to the blood transfusion [G. J. Busman] ...	150
Transfusion of blood in pernicious anemia [J. M. Graham] ...	8
TRANSITORY MOTOR APHASIA	
Complete transitory motor aphasia, following follicular tonsillitis followed by logorrhea [G. Funaioli] ...	186
TRAUMA	
Cases illustrating the influence of trauma on the distribution of psoriasis [W. D. D. Small] ...	804
Relationship between trauma and malignant disease from	

	PAGE		PAGE
an industrial viewpoint [W. Ophuels]	791	and guinea pigs. III. The therapeutic action of n-phenylglycinamid-p-arsonic acid in experimental trypanosomiasis of rabbits [L. Pearce, and H. Brown] ...	63
TRAUMATIC STRICTURE		TUBERCULA	
Traumatic stricture of the urethra in children and young subjects, with some remarks concerning the immediate treatment of ruptured urethra [A. R. Thompson]	71	Stigmata of predisposition to bone and joint tubercula [W. C. Rivers]	160
TRIGEMINAL NEURALGIA		TUBERCLE BACILLUS	
Results of intracranial infections in trigeminal neuralgia [F. Hartel]	232	Active immunization by means of non-virulent and non-toxic living tubercle bacilli [C. D. Aaron]	782
TRIPLE CALCIUM PHOSPHATE		The influence of chaulmoogra oil on the tubercle bacillus [J. A. Kolmer, L. C. Davis and R. Jager]	684
Triple calcium phosphate as a stimulant for bone reproduction (healing) in fractures [R. J. Rehan]	1088	TUBERCULOUS EMPYEMA	
TRYPANOCIDAL ACTIVITY		Tuberculous empyema [G. Kalb]	781
A comparative study of the trypanocidal activity of arspenamin and neo-arsphenamin [J. F. Schmaberg, J. A. Kolmer, and G. W. Raiziss]	237	TUBERCULOUS INFECTION	
Quantitative studies in chemotherapy. The trypanocidal action of antimony compounds. [C. Voegtlin and H. W. Smith]	432	General leukocytic response of the guinea pig during the reaction of artificial immunity in experimental tuberculous infection [R. G. Hussey]	815
TRYPANOSOME INFECTIONS		TUBERCLE VACCINE	
Chemotherapy of trypanosome and spirochete infections. Biological series. II		An attenuated tubercle vaccine [N. Raw]	140
The therapeutic action of n-phenylglycinamid-p-arsonic acid in experimental trypanosomiasis of mice, rats and guinea pigs. III. The therapeutic action of n-phenylglycinamid - p - arsonic acid in experimental trypanosomiasis of rabbits [L. Pearce, and H. Brown] ...	63	TUBERCULOUS MENINGITIS	
Chemotherapy of trypanosome and spirochete infections. Biological series. IV. The action of N-phenylglycinamid-p-arsonic acid upon spirochete infections [W. H. Brown and L. Pearce]	150	Recovery from tuberculous meningitis after treatment with intraspinal injections of antimeningococcic serum [A. W. Hollis, and I. H. Pardee]	188
TRYPANOSOMIASIS		The curability of tuberculous meningitis [F. Harbitz] ..	852
Chemotherapy of trypanosome and spirochete infections. Biological series. II. The therapeutic action of n-phenylglycinamid - p - arsonic acid in experimental trypanosomiasis of mice, rats		TUBERCULOSIS	
		A comparative study of the pathology and x-ray densities of tuberculous lung lesions [H. K. Dunham and J. H. Skavlom]	841
		Adrenalin hypersensitiveness in definite and unproved pulmonary tuberculosis [F. H. Heise and L. Brown] ...	199
		A few notes on the diagnosis and differential diagnosis of tuberculosis in bones and joints [G. Forsell]	650
		Apical pleuritis and its relationship to pulmonary tuberculosis [J. G. Van Zwaluwenburg and G. B. Grabfield]	781

INDEX OF SUBJECTS

xciii

	PAGE
Chaulmoogra oil in the treatment of tuberculosis [W. L. Culpepper and M. Ableson]	1091
Chemotherapy of tuberculosis [S. Melamet]	300
Conditions commonly mistaken for pulmonary tuberculosis [B. P. Stivelman].	784
Differential diagnosis of acute miliary tuberculosis [H. von Rey]	17
First infection with tuberculosis by way of the lungs [E. L. Opie and H. Anderson]	303
First infection with tuberculosis by way of the intestinal tract [E. L. Opie].....	302
Hypertrophic osteoarthropathy in pulmonary tuberculosis [H. J. Corper, P. Cosman, W. M. Gilmore and L. T. Black]	966
Letter. Spahlinger's treatment [W. C. Wilkinson]...	417
Mercury compounds in the chemotherapy of experimental tuberculosis in guinea pigs [L. M. DeWitt].....	543
Milk as transmitters of tuberculosis [M. Curoino]	720
New anti-serum for tuberculosis [Editorial].....	419
New serum for tuberculosis [News Item].....	418
Postural rest for pulmonary tuberculosis [G. B. Webb, A. M. Forster and G. B. Gilbert]	489
Pulmonary tuberculosis in young children [A. E. Siegel]	1128
Resistance to tuberculosis. A nonimmunologic chemical factor worthy of consideration [H. J. Corper, H. Gauss and O. B. Rensch] ..	622
Seaside sanatoria in the treatment of tuberculosis in children [J. V. Montenegro]	644
Serological studies on tuberculosis [Y. Nishida and S. A. Petroff]	148
Some interesting things about tuberculosis [S. H. Slater]	686
Spahlinger treatment [News Item]	420
Spahlinger's treatment of tuberculosis [News Item]....	416
Specific prophylaxis and ther-	

	PAGE
apy of tuberculosis [A. Strubell]	875
Studies on endothelial reactions. IV. The endothelium in experimental general miliary tuberculosis in rabbits [N. C. Foot]	721
The adrenals and thyroid in experimental tuberculosis [G. B. Webb, G. B. Gilbert and C. T. Ryder]	830
The clinical importance of the different types of pulmonary tuberculosis as determined by roentgen examination [R. G. Allison]....	465
The incidence and histopathology of tuberculosis of the tonsils based on eight thousand six hundred tonsillectomies [C. V. Weller]...	783
The inhalation treatment in pulmonary tuberculosis [B. Robinson]	198
The search for a specific treatment of tuberculosis. The Spahlinger treatment [Editorial]	1059
The search for a specific treatment of tuberculosis [W. C. Wilkinson]	874
The tonsillar route of infection in pulmonary tuberculosis [J. G. Van Zwaluwenburg and G. P. Grabfield].	779
The roentgenographic pathology of pulmonary tuberculosis, including description of tissue changes as revealed by stereograms and a critical study of the clinical bearing of the mutations of destruction and repair [J. B. Amberson, Jr.]	843
The taking of temperature in the diagnosis and treatment of tuberculosis [G. T. Palmer]	1087
The value of the pneumothorax treatment of pulmonary tuberculosis [E. P. Boas]	603
Treatment of chronic tuberculous infections by the sulphates of the heavy earths [H. Grenet and H. Drouin]	99
Tuberculosis of epididymis and its operative treatment [O. Zuckerkandl]	1072
Tuberculosis of the lymphatic vessels of the leg and the	

	PAGE
second metacarpal bone.	
Secondary elephantiasis	
W. Martin]	875
Tuberculosis from the standpoint of the postmortem [H. E. Robertson]	604
Tuberculosis of the central nervous system [W. Kirschbaum]	857
Vaccines in the treatment of tuberculosis [A. Minnig].	982
What constitutes the early recognition of tuberculosis [S. Simon]	965
TUBERCULOUS MENINGITIS	
Acute meningitis and tuberculous meningitis [L. Morquio]	1045
The symptoms and course of tuberculous meningitis in adult consumptives [C. Holten]	1043
TUMOR	
A discussion of the etiology of so-called anilin tumors of the bladder [A. Hamilton]	793
Benign decidual tumors of the uterus [J. B. Nichols].	524
Benign tumors of the gastrointestinal tract [E. E. H. Boyer]	609
Clinically doubtful breast tumors: their diagnosis and treatment [E. I. Bartlett]..	1068
Death from suffocation, after irradiation of a mediastinal tumor [A. Czepa]	748
The action of radium and x-rays on malignant cells [T. H. D. Webster]	744
The diagnosis of syphilitic tumors in the stomach and intestines [L. Bard]	34
The proteolytic ferment of the tumors and the blood of patients suffering with cancer [Loeper, Faroy and Tonnet]	314
Tumor of the breast in a young soldier [L. Weitzie]	893
Tumors of the male breast [J. Speese]	894
TYPHOID FEVER	
The diagnosis of typhoid and paratyphoid infections [H. J. Goeckel]	611
TYPHUS FEVER	
Intravenous injections of urotropin in typhus fever [M. Glatard]	113

	PAGE
On the etiology of typhus fever [E. W. Schultz]	610
206 cases of typhus fever [M. Glatard]	114
ULCER	
A case of large penetrating ulcer of the lesser curvature [F. Hernaman-Johnson]	1032
A comparison of important factors in the diagnosis of gastric and duodenal ulcers [E. W. Rowe]	752
Diagnosis and treatment of gastric and duodenal ulcers E. F. Stevenson]	210
Gangrenous ulcer in vaginitis from mercurial intoxication [H. M. Jæger]....	524
Regurgitation of the duodenal contents in the diagnosis of duodenal ulcer [C. B. Udaondo]	99
Some observations on the Sippy treatment of peptic ulcer [J. Friedenwald, and T. H. Morrison]	40
The treatment of varicose ulcers, chronic metritis and chancroid with the salts of the ceric earths [A. Frouin]	100
ULCERATIVE PAROTITIS	
Pathogenesis of ulcerative parotitis in the new born [W. Plewka]	952
ULTRAVIOLET RAYS	
Ultraviolet rays and a new basis in the treatment of diseases of the heart and blood-vessels [Schaecker]..	749
UMBILICAL HERNIA	
Umbilical hernia [A. P. C. Ashhurst]	915
UNILATERAL AMAUROSIS	
Attacks of unilateral amaurosis due to the abuse of tobacco, with changes in the color of the iris [P. Pagniez]	400
UNILATERAL DWARFISM	
Unilateral dwarfism of limbs connected with congenital multiple chondromata [F. P. Weber]	254
UNIVERSITIES	
Health activities in colleges and universities [J. Sundwall]	118
UREA NITROGEN	
Chemical changes in the blood	

INDEX OF SUBJECTS

xcv

	PAGE
in disease. I. Nonprotein and urea nitrogen [V. C. Myers]	52
UREA SECRETION	
I. Mechanism of urea excretion [J. Oliver]	626
Urea secretion after suprarenalectomy [G. Bevier and A. E. Shevky]	341
URETER	
Hydronephroma of kidney; secondary growth of ureter [J. W. T. Walker]	915
URETHRA	
Catarrh of the male urethra of non-gonorrheal origin, and its treatment with "akatinol" [M. Tieche] ...	488
Traumatic stricture of the urethra in children and young subjects, with some remarks concerning the immediate treatment of ruptured urethra [A. R. Thompson]	71
URINARY ANTISEPSIS	
Urinary antiseptics: A study of the antiseptic properties and the renal excretion of 204 anilin dyes [E. G. Davis]	817
URINARY CALCULI	
Problems concerning urinary calculi [E. L. Keyes, Jr.] ..	975
Problems concerning urinary calculi [E. L. Keyes, Jr.] ..	1066
URINARY TRACT	
Collected abstract of the literature on roentgenology for the year 1919. Organs of digestion (the urinary tract) [I. S. Hirsch]	261
URINE	
Metabolism in pellagra: A study of the urine [M. X. Sullivan, R. E. Stanton, P. R. Dawson]	727
Polariscopic study of urines of a group of syphilitics [S. P. Taylor and K. P. A. Taylor]	1007
The nature of the reducing substance in the urine of infants with nutritional disorders [O. M. Schloss]	956
UROBILINURIA	
Urobilinuria: Its origin and clinical significance [R. Anduze-Acher]	112
UROTROPIN	
Intravenous injections of uro-	

	PAGE
tropin in typhus fever [M. Glatard]	113
URTICARIA	
Consideration about the pathological physiology, and pathogenesis of urticaria. [A. Louste]	128
Urticaria, classification of types and its causes [G. L. Lambright]	1007
Urticaria from fatigue and colloidoclasia [M. J. Jolt-rain]	713
UTERINE CARCINOMA	
Operative x-ray treatment of uterine carcinoma [L. Adler]	658
UTERUS	
An operation for retroflexion of the uterus [J. Craig]..	897
Benign decidual tumors of the uterus [J. B. Nichols].	524
UTERUS COLLUM CARCINOMA	
Lasting results from irradiation of the uterus collum carcinoma with radio-active substances [B. Schweitzer] ..	945
VACCINES	
Some observations on the use of vaccines and glucose in the treatment of influenza and bronchopneumonia [H. H. Koons]	311
The use of pertussis vaccine [P. Luttinger]	774
Vaccine treatment of pertussis [R. K. Rewalt]	1130
Vaccines in the treatment of tuberculosis [A. Minnig].	982
VACCINATION	
Effect of vaccination against influenza and some other respiratory infections [E. O. Jordan and W. B. Sharp]	1079
Influenza studies. Effect of vaccination against influenza and some other respiratory infections [E. O. Jordan and W. B. Sharp]	772
Report on the prophylactic vaccination of 1536 persons against acute respiratory diseases, 1910-1920. [A. I. von Sholly and W. H. Park] ..	409
Studies on experimental pneumonia. V. Active immunity against experimental pneumococcus pneumonia in monkeys following vaccination with living cultures	

	PAGE
of pneumococcus [R. L. Cecil and F. G. Blake]	234
VAGINITIS	
Gangrenous ulcer in vaginitis from mercurial intoxication [H. M. Jæger].....	524
VAGUS	
Irritation of the vagus and hemorrhagic erosions of the stomach [K. Nicolaysen]..	245
Types of auriculoventricular dissociation obtained by stimulation of the vagus [A. Tournade and G. Giraud]..	238
VARICELLA	
Clinical factors in varicella with especial reference to blood findings [M. Stroh]..	892
VARICOSE ULCERS	
The treatment of varicose ulcers, chronic metritis and chancreoid with the salts of the ceric earths (A. Frouin)	100
V-COLON	
The mobile V-colon, its causes, effects and correction	798
VEGETABLE FATS	
Digestibility of certain miscellaneous vegetable fats [A. D. Holmes and H. J. Deuel]	233
VENTRICLE	
The ventricle form of meningococcus meningitis [P. Woringer]	549
VENTRICULAR PREDOMINANCE	
The determination of the ventricular predominance from the electrocardiogram [H. E. B. Pardee]	245
VENTRICULAR SYSTOLE	
Factors modifying the duration of ventricular systole [L. N. Katz]	586
VERSION	
Version [I. W. Potter]	992
VERTIGO	
Vertigo. Its treatment by adrenalin [M. Vernet]	186
VESICULITIS	
Seminal vesiculitis [M. Ziegler]	791
VINCENT'S ANGINA	
Notes on the fusiform bacilli of Vincent's angina [S. R. Gifford]	135
Treatment of "Vincent's Angina" by intravenous injections of salvarsan [W. J. Young]	203

	PAGE
VINCENT'S DISEASE	
Vincent's disease [J. J. Shea]	135
VINCENT'S FUSIFORM	
Affection of the oral cavity with fusiform and spirallæ of Vincent [F. De Angelis]	835
VINCENT'S SPIRRILLÆ	
Affection of the oral cavity with fusiform and spirallæ of Vincent [F. De Angelis]	835
VIRUS	
Studies on acute respiratory infections. I. Method of demonstrating microorganisms, including "filtrable viruses", from upper respiratory tract in "health", in "common colds" and in "influenza" with the object of discovering "common strains" [A. W. Williams, M. Nevin and C. Gurley].	1016
The virus of encephalitis lethargica [Levaditi and P. Harvier]	189
VISCERAL PTOSIS	
Visceral ptosis [O. B. Hall]..	315
VISCEROPTOSIS	
Visceroptosis as a cause of "stomach trouble" [W. D. Reid]	701
VITAMIN	
Nutrition and public health with special reference to vitamins [J. F. McClendon]..	411
Nutritive factors in plant tissues. III. Further observations on the distribution of water soluble vitamin [T. B. Osborne, and L. B. Mendel]	337
VITILIGO	
Vitiligo [W. J. Highman]....	919
VOCATIONAL PSYCHOLOGY	
The outlook for vocational psychology [F. Watts]	382
VOLVULUS	
Volvulus of cecum from membranous pericolicitis [C. Silvan]	999
VOMITING	
Periodic (or cyclic) vomiting with acetonemia [A. B. Marfan]	631
Vomiting [G. M. Niles]	809
WAR	
Influence of the war on preventive medicine and public health [C. St. C. Drake]	20

	PAGE
WAR ORPHANS	
An American colony of war orphans [Bouquier]	636
WARTS	
The etiology of common warts. Their production in the second generation [L. B. Kingery]	591
WASSERMANN TEST	
A study of the Wassermann test. Reaction in a large group of supposedly non-syphilitic individuals, including large groups of diabetics and nephritics [J. R. Williams]	812
Experimental observations upon the effect of cholesterolemia on the results of the Wassermann test [C. F. Craig and W. C. Williams] ..	1018
Interpretation of Wassermann reaction of blood-serum in mental disease [J. A. Jackson]	542
The Wassermann test in patients affected with malaria in the tropics [F. H. Hehewerth and W. A. Kop]	534
WASSERMANN TEST	
The whys and wherefores of unreliable Wassermann reports [W. Krauss]	580
Wassermann contradictions considered from the clinician's point of view [A. L. Wolbarst]	309
WATER SOLUBLE VITAMIN	
Nutritive factors in plant tissues. III. Further observations on the distribution of water soluble vitamin [T. B. Osborne and L. B. Mendel]	337
WEIL-FELIX REACTION	
The Weil-Felix reaction and X19 in immune serum agglutination [C. Prausnitz].	244
WERDING-HOFFMAN'S DISEASE	
Congenital myotonia (Oppenheim) and Werdning-Hoffman's disease are the same condition [Leenhardt and Sentis]	548
WHEAT KERNELS	
Nutritive values of the proteins of the barley, oat, rye, and wheat kernels [T. B. Osborne and L. B. Mendel]	249

	PAGE
WHISPERED VOICE SOUND	
The whispered voice sound, an aid to early diagnosis of pneumonic consolidation [H. H. Lissner]	200
WHITE ADRENAL LINE	
The white adrenal line (Sergeant); its clinical significance [W. E. Kay and S. Brock]	975
WHOOPING COUGH	
The benzyl benzoate treatment of whooping cough [T. E. McMurray]	159
Measles and whooping-cough [C. Pelfort]	345
Syncope and apparent death in whooping cough: Treatment [A. M. Vargas]	954
Whooping cough contracted at the time of birth with report of two cases [J. Phillips]	545
WILSON'S DISEASE	
Wilson's disease. General review [J. Comby]	644
WOMEN	
Comparison of smear, culture and complement-fixation in chronic gonorrhea in women [J. D. Smith and M. A. Wilson]	436
WORK	
Effect of work and heat on the hydrogen concentration of the sweat [G. A. Talbert]	51
WORMS	
Hemolysins from parasitic worms [B. Schwartz]	435
WRISBERG	
Note on morphology of ganglion of Wrisberg [Laignel-Lavastine]	432
W. MULLER METHOD	
Hypertrophy of the right heart. Measurements by the method of W. Muller [J. Bret]	434
XANTHOCHROMIA	
The significance of xanthochromia of the cerebrospinal fluid [I. A. Abt, and I. H. Tumpeer]	258
X19	
The Weil-Felix reaction and X19 in immune serum agglutination [C. Prausnitz].	244
X-RAY	
A comparative study of the	

	PAGE
pathology and x -ray densities of tuberculous lung lesions [H. K. Dunham and J. H. Skavloom]	841
Avoidance of general symptoms, after deep x -ray treatment [W. Rieder] ...	845
A plea for a routine x -ray examination of the gall-bladder region in every chronic abdomen [B. R. Kirklin]...	751
A warning of overdose of x -ray in cases of myelonic leukemia [W. Parrisius] .	653
Death from suffocation, after irradiation of a mediastinal tumor [A. Czepa]	743
Effect of small doses of x -rays on hypertrophied tonsils and other lymphoid structures of the nasopharynx [J. B. Murphy, R. D. Hussey, W. D. Witherbee, S. L. Craig, and E. Sturm].	1039
Operative x -ray treatment of uterine carcinoma [L. Adler]	658
Papaverin in x -ray diagnosis of gastric disease. Report of 250 cases. [S. Szerb and V. Revesz]	559
Studies of x -ray effects. VI. Effect of the cellular reaction induced by x -rays on cancer grafts [J.B. Murphy, R. G. Hussey, W. Nakahara, E. Sturm]	743
Studies of x -ray effects. VII. Effects of small doses of x -rays of low penetration on the resistance of mice to transplanted cancer [W. Nakahara and J. B. Murphy]	748
The action of radium and x -	

	PAGE
rays on malignant cells [T. H. D. Webster]	744
X-ray diagnosis of osteomyelitis [N. J. Nessa]	1031
X-ray treatment of acne vulgaris [Witherbee and Remer]	1033
X-ray treatment of tonsils and adenoids [W. D. Witherbee]	1027
X-RAY BURN	
An x -ray burn of third degree followed by rapid healing [E. S. Blaine]	1033
YELLOW FEVER	
Etiology of yellow fever. Serum treatment of animals infected with leptospira icteroides [H. Noguchi] ...	143
Etiology of yellow fever. XIII. Behavior of the heart in the experimental infection of guinea pigs and monkeys with leptospira icteroids and leptospira icterohæmorrhagiæ [A. E. Cohn, and H. Noguchi] ...	939
Experimental studies of yellow fever in northern Peru [H. Noguchi and I. J. Kligler]	624
ZINC CHLORID POISONING	
Zinc chlorid poisoning: Report of outbreak among workers in a wood preserving industry [C. P. McCord and C. H. Kilker]	492
ZONIFORM VITILIGO	
A band of scleroderma of the left lower limb with zoni-form vitiligo of the right half of the abdomen in a syphilitic girl [A. B. Marfan and N. Rabuteau].....	353

NOTE CAREFULLY!

THIS IS THE COMPLETE CUMULATIVE
INDEX FOR THE DIGEST, VOL. II, NOS.
1 TO 12, 1921.

FILE IT WITH THIS ISSUE OF THE DI-
GEST IN YOUR BINDER AND KEEP IT
AS A PERMANENT INDEX.

THIS COMPLETES THE 1921 VOLUME.
YOU WILL RECEIVE A NEW BINDER
FOR YOUR 1922 VOLUME.

ALSO!!

READ THE SUMMARY
ON NEXT PAGE.

What The Prior Service Has Accomplished During 1921

PRIOR'S INTERNATIONAL MEDICAL DIGEST IN 1921 *(in connection with Tice's Practice of Medicine)*

Presented **1000** individual abstracts to subscribers.

Published in abstract form articles by **1100** of the foremost doctors, medical professors, general practitioners and scientific researchers of the world.

Listed **2500** individual subjects in the 1921 cumulative index.

Reviewed over **225** of the world's leading medical journals and published abstracts from **162**. This includes the abstracts from journals of **21** state medical associations.

Gave actual translations and abstracts from magazines from Germany, England, Scotland, Spain, France, Belgium, Brazil, Canada, Ireland, Italy, India, Switzerland, Argentina, Holland, Australia, Norway, Austria and the United States.

Numbered among its abstractors, college professors, distinguished physicians, busy general practitioners, and experienced research students.

PRIOR'S RESEARCH DEPARTMENT IN 1921 *(in connection with Tice's Practice of Medicine)*

Answered **3000** individual and separate inquiries by TICE subscribers.

Prepared **5000** new abstracts to meet these queries.

Printed in the Prior printery **450,000** sheets of Research material to meet the above queries.

Added to the cumulative files a copy of each of the **5000** new abstracts.

Called in regular practicing physician to place proper interpretation on inquiries for busy practitioners.

Added staff of abstractors composed of successful practicing physicians.

M. R. R. ref. W.
 Author *International Med*
 Title *Digest*
 Year *1921*
 Name of Borrower
 Date

P. med. I
 Biological & Medical Serials
 STORAGE

University of Toronto Library

Biological
 & Medical
 Serials

DO NOT
 REMOVE
 THE
 CARD
 FROM
 THIS
 POCKET

NOT FOR CIRCULATION

Acme Library Card Pocket
 Under Pat. "Ref. Index File"
 Made by LIBRARY BUREAU

